NATIONAL ENERGY TECHNOLOGY LABORATORY

MITAS-2009 Expedition

U.S. Beaufort Shelf and Slope—Lithostratigraphy Data Report

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Cover Illustration: The Arctic sun sets on the anchored USCGC *Polar Sea* off the coast of Barrow, Alaska. This Polar Class icebreaker served as the science operations platform during the MITAS-2009 Expedition of the U.S. Beaufort Shelf and Slope (photo credit: J. Presley, 2009).

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MITAS-2009 EXPEDITION, U.S. BEAUFORT SHELF AND SLOPE—LITHOSTRATIGRAPHY DATA REPORT

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Acronyms

Term	Description
BOEM	Bureau of Ocean Energy Management
CCD	Charge Coupled Device
cmbsf	Centimeters below seafloor
CTD	Conductivity-Temperature-Depth
DOE	Department of Energy
IFM GEOMAR	Institut für Meereskunde - Helmholtz Centre for Ocean Research Kiel
MDI	Materials Data Inc.
MITAS	Methane in the Arctic Shelf/Slope
NETL	National Energy Technology Laboratory
NIOZ	Royal Netherlands Institute for Sea Research
NRL	U.S. Naval Research Laboratory
ORISE	Oak Ridge Institute for Science and Education
USGS	U.S. Geological Survey
VCD	Visual Core Descriptions
XRD	X-Ray Diffraction

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1. INTRODUCTION

The volume of methane released through the Arctic Ocean to the atmosphere and its potential role in the global climate cycle have increasingly become the focus of studies seeking to understand the source and origin of this methane. In 2009, an international, multi-disciplinary science party aboard the U.S. Coast Guard icebreaker *Polar Sea* successfully completed a trans-U.S. Beaufort Shelf expedition aimed at understanding the sources and volumes of methane across this region. Following more than a year of preliminary cruise planning and a thorough site evaluation, the Methane in the Arctic Shelf/Slope (MITAS) expedition departed from the waters off the coast of Barrow, Alaska in September 2009. The expedition, led by researchers with the U.S. Naval Research Laboratory (NRL), the Royal Netherlands Institute for Sea Research (NIOZ), and the U.S. Department of Energy's National Energy Technology Laboratory (NETL), was organized with an international shipboard science team consisting of 33 scientists with the breadth of expertise necessary to meet the expedition goals. NETL researchers led the expedition's initial core processing and lithostratigraphic evaluations, which are the focus of this report. A full expedition summary is available in *First Trans-Shelf-Slope Climate Study in the U.S. Beaufort Sea Completed* by Coffin et al. (2010).

Primary datasets in their original file formats supporting the tables, figures, and appendices mentioned in this report can be accessed for download through NETL's Energy Data eXchange (EDX) online system (https://edx.netl.doe.gov) using "MITAS" in searches/queries.

1.1 EXPEDITION MOTIVATION & OVERVIEW

While some areas of the Arctic Ocean have garnered more attention than others, the nature of and controls on methane flux across the U.S. Beaufort Shelf and Slope are largely unconstrained. By constraining the amount of methane traveling through the marine filter to the atmosphere, studies like those performed during the course of the expedition sought to understand the source of methane contributions from a variety of potential sediment and marine reservoirs. These can include sources such as subsurface free-gas reservoirs, sub-permafrost methane hydrates, intra-permafrost gas hydrates, methane production within shallow sediment as well as the water column itself. The 2009 MITAS expedition was designed to examine and understand water column carbon gas flux and cycling (Coffin et al., 2009; Coffin et al., 2010), sediment and pore water carbon cycling (Coffin et al., 2012; Lorenson et al., 2010; Rose et al., 2009a,b; Rose et al., 2010), shelf and slope stratigraphy using geoacoustic imaging (Wood et al., 2009), and atmospheric measurements of methane (Coffin et al., 2010) across the U.S. Beaufort Shelf and Slope. The scientific goal of this expedition is to synthesize these data sets and present the results in future journal publications.

1.2 SAMPLE SITES AND TRANSECTS

Unlike other areas across the Arctic Shelf, such as the Canadian-Beaufort and Svaalbard regions, which have been the focus of repeated studies, there are less data, particularly modern seismic, bathymetry and other remote sensing surveys, available across the U.S. Beaufort Shelf. During the expedition planning stage, a thorough examination of existing and available geophysical, geologic, bathymetric, and other datasets was performed in consultation with key research groups who have studied the region (e.g., U.S. Geological Survey [USGS] and Bureau of Ocean Energy Management [BOEM] to grade and select areas of final interest.

In particular, regions of the shelf and slope were ranked using a set of favorable factors, including—

- Accessibility by the U.S. Coast Guard icebreaker, *Polar Sea*
- Evidence of shallow gas flux along faults or fractures
- Seafloor mounds or pockmarks
- Sub-surface free gas and gas hydrate accumulations

As a result, the MITAS expedition initially targeted two near-shore locations identified as having likely subsurface free gas and gas hydrate occurrences: 1) the Hammerhead region to the east near Camden Bay and the Canning River System, and 2) the Thetis Island region of the central Beaufort Shelf near Harrison Bay and the Colville River System. Both regions were evaluated to water depths as shallow as 30 m for potential sampling targets.

In addition to the shelf, the expedition also targeted deeper waters, up to 2077 m water depth, to evaluate the methane flux along the transition from the U.S. Beaufort Shelf to the Slope. Three transects were conducted from the shelf down the slope. From east to west these transects were as follows: 1) offshore Hammerhead, 2) offshore Thetis Island, and 3) the Halkett transect (Figure 1). The final selection of the transects, in particular coring locations, was refined while at sea based on preceding coring results and the continuous evaluation of pre-existing BOEM and USGS subsurface data (including geophysical and core data from Lorenson and Kvenvolden 1995, 1997) and on-board analysis of real-time 3.5 kHz acoustic data. Ultimately, three shelf-to-slope coring transects were completed across the U.S. Beaufort Shelf/Slope (Figure 2), with on-board acoustic data covering the areas transited between coring locations (Figure 3). Transects were named for their general location and proximity to manmade or natural geographic references: 1) the Hammerhead Line; 2) the Thetis Island Line; and 3) the Cape Halkett Line (Figure 1).

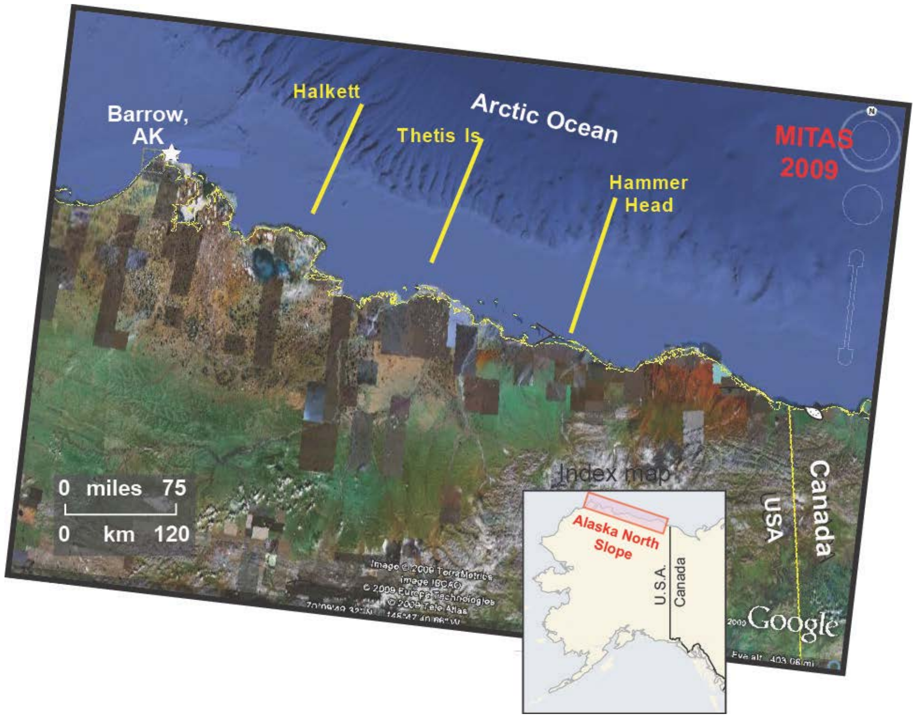

Figure 1. Bathymetry and topography from Google Earth of the North Slope of Alaska, U.S. Beaufort Sea. General location and name of coring transects from the MITAS-2009 Expedition are highlighted in yellow.

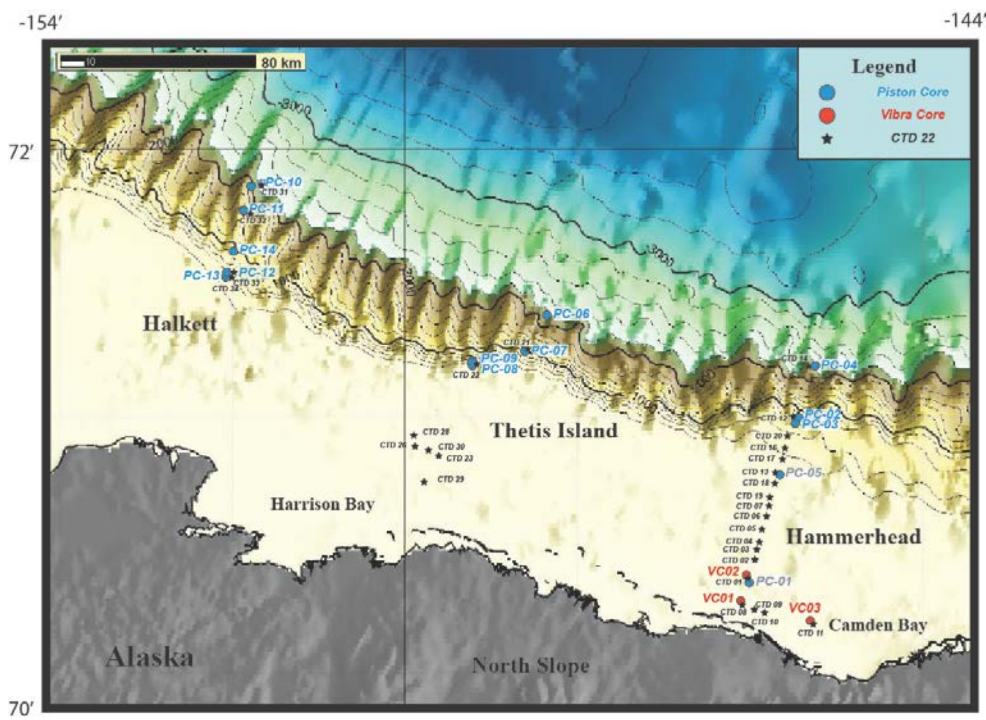

Figure 2. MITAS-2009 vibra core, piston core, and CTD sample locations.

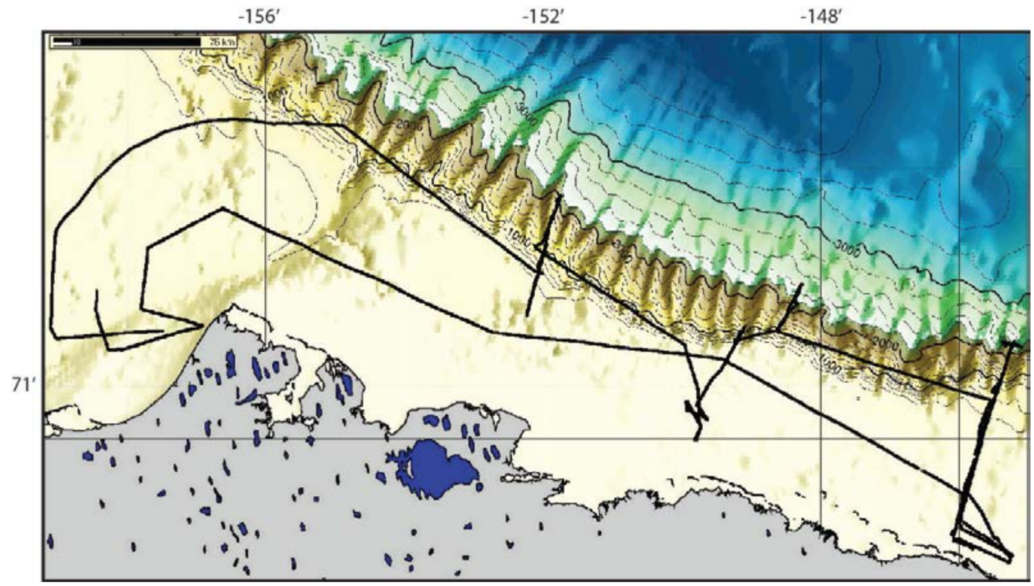

Figure 3. MITAS-2009 ship track line map.

Over 12 days of operation, the expedition accomplished field sampling from the sediment sub-surface to the atmosphere, leading to the successful acquisition of more than 4,000 km of 3.5 khz acoustical profiles (NRL) (Figure 3), 34 Conductivity-Temperature-Depth (CTD) casts (NIOZ), 3 vibra cores and 12 piston cores (NETL and NRL) (Figure 2), and 20 multi-cores (IFM-GEOMAR). Numerous subsamples were collected and shipboard analyses were completed on the recovered cores. This data report is focused on the lithostratigraphic datasets from the recovered vibra cores and piston cores. Operational information about the piston and vibra cores such as date acquired, core name, total length, water depth, and geographic location is provided in Appendix 1.

1.3 VIBRA CORES AND PISTON CORES

The easternmost coring transect was Hammerhead, which consisted of 8 vibra and piston coring attempts ranging from 22 to 2,077 m water depth. Of these cores VC01, VC02, VC03, PC02, PC03, and PC04 were successful. PC01 and PC05 failed to recover any sediment (Figure 2). To the west the Thetis Island transect comprised 4 successful cores: PC06, PC07, PC08, and PC09, targeting water depths of 144 to 2,208 m (Figure 2). The western-most transect of the expedition was the Halkett, which successfully recovered 5 cores: PC10, PC11, PC12, PC13, and PC14, from water depths of 280 to 1,957 m (Figure 2).

Once recovered, gas samples were immediately collected from cores (Coffin et al., 2012). In addition, each core was run through the Geotek multi-sensor core logger for magnetic susceptibility, *P*-wave velocity, resistivity, and gamma-density measurements (Rose et al., 2010). After the above samples and measurements were completed, the cores were split into working and archive halves. Visual core descriptions of the archive half was completed for each core. Samples for shipboard smear slides, coarse fractions, and XRD analyses were collected, as well as corresponding samples for post-cruise grain size analysis from the working half of each core. Line scan images of the split core surfaces were collected post-expedition. The cores now reside at Oregon State University's Marine Geology Repository. The methods used to characterize the lithostratigraphy of the recovered cores are described in the following section.

2. LITHOSTRATIGRAPHIC METHODS

2.1 VISUAL CORE DESCRIPTIONS

During the expedition, visual core descriptions (VCD) were recorded manually for each core section. These observations have been integrated with sampling information, smear slide, coarse fraction, grain size measurements, and core images using WellCAD digital visual core description software. All of the above data are summarized in Appendix 2.

Features used to characterize the sediments recorded on the shipboard VCDs included observations of the lithology, sedimentary structures, bioturbation, diagenetic precipitates, macroscopic fossils, core disturbance, and relative sediment firmness. The lithology and bulk grain size of the described sediments were described visually on the VCDs, these data have subsequently been quantified using XRD and particle size analyses. The depth and extent of: 1) sedimentary structures, such as silt or sand laminae and inclined bedding; 2) visible bioturbation, which was rarely observed, but the degree and nature of the disturbance was noted; 3) diagenetic features, such as authigenic carbonate nodules and cements and iron sulfide mottling and nodules; 4) macroscopic fossils including shell fragments, preserved whole shells, bivalves, gastropods etc.; 5) coring-related sediment disturbance that persists over intervals of ~10 cm; and vi) relative firmness of sediment.

The positions of samples selected for analyses from the core during processing were recorded in a sample spreadsheet (Appendix 3). These samples were subsequently utilized for shipboard and post-expedition lithostratigraphic analyses including grain size, smear slide, coarse fraction, and XRD measurements.

2.2 CORE PHOTOGRAPHY

No core imaging system was available at sea. Core images were acquired post-expedition using the Geotek line scan camera at Oregon State University’s Marine Geology Repository, in June 2012. Image resolution is 100 pixels per cm, with an exposure time of 20 ms, a calibration aperture of 9.5 cm, and an image aperture of 6.7 cm. The software used with the system is Geotek Imaging v.3.2.1.0. Due to the length of time between core collection and this recent imaging, the core photographs may not be representative of colors and textures that were originally observed and described on the VCD from the fresh core surface. In particular, frozen storage from 2009 to 2012 has changed the texture of many of the cores. When possible, core surfaces were scraped horizontally to present a fresh surface to the camera, but the texture of many of the cores was not conducive to scraping. Nevertheless, these core images do capture many of the sedimentary features of the cores and have been added to the VCDs (Appendix 2).

2.3 SMEAR SLIDE DESCRIPTIONS

Smear slides were collected and analyzed at sea in order to determine the composition of the sediments. Smear slides are prepared by placing a small amount of sediment onto a 1 in × 3 in glass slide with a toothpick, homogenizing the sample, and dispersing the material over the slide with a drop of deionized water. The sample is then dried on a hot plate at the lowest effective temperature. A drop of Norland optical adhesive #61 and a 2.2 cm × 3.0 cm cover slip are added. The cover slip is fixed to the slide in an ultraviolet light box. Under a petrographic microscope, the dominant components in a sample (e.g., biogenic, mineral, lithic, and organic fragments) may be identified. Abundance of each component is estimated using a comparison chart for visual percentages by Terry and Chilingarian (1955) (Figure 4).

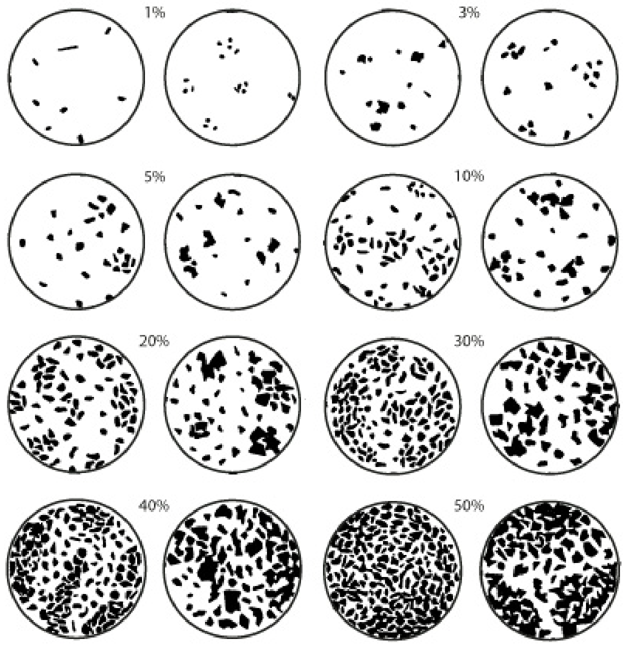

Figure 4. Comparison chart for volume percentage estimation (after Terry and Chilingarian, 1955).

During shipboard activities, smear slide descriptions were completed for dominant and minor lithologies. Each of these descriptions provide estimates of the major mineralogical and biological components present in the smear slide as well as authigenic minerals and other noticeable components such as woody debris. The smear slide data are summarized in Table 1, along with information about the location of samples and their estimated grain-size distribution (% sand-silt-clay). For the full spreadsheet workbook of smear slide observations highlighted in Table 1, please see the original data file in EDX (Table 1).

Table 1 MITAS-2009 Snapshot of Smear Slide Data

MITAS PS2009-09 Smear Slide Summary

Sample Information							Smear Slides: Lithology		Texture (%)				Minerals (Visual Est. %)																Biogenic (Visual Est. %)										
Site	Core	Type	Section	Top Depth (cm in Section)	Depth of Sample (mbsf)	Sample #	Dominant	Minor	Sand	Silt	Clay	Photo	Quartz	Feldspar	Mica	Heavy Minerals	Volcanic Glass	Glauconite	Clays - Other	FeS	Pyrite	Framboidal Pyrite	Dolomite Rhombs	Authigenic Carbonate	Lithic Fragments	Chert Grains	Hornblende	Other Minerals	Foraminifera	Nannofossils	Carbonate Fragments (shell or detrital)	Diatoms	Radiolarians	Siliceous Shell Fragments	Sponge Spicules	Silicoflagellates	Fish Remains	Plant/Wood Debris	Other
Hammerhead	1	VC	1	2	0.03	0	x	0	10	30	60	0	75.00	4.00	1.00	0.00	0.00	0.00	15.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00	0.00	trace	0	0	0	0	0	0	0	0	0	0	0
Hammerhead	0	VC	1	8	0.09	0	0	0	2	33	65	0	80.00	2.00	0.00	0.00	3.00	0.00	13.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0
Hammerhead	1	VC	1	22	0.22	0	0	0	1	32	67	0	80.00	1.00	0.00	0.00	trace	3.00	13.00	3.00	0.00	0.00	0.00	0.00	3.00	0.00	0.00	trace	0	0	0	0	0	0	0	0	0	0	0
Hammerhead	1	VC	1	33	0.34	0	x	0	5	20	75	0	70.00	2.00	1.00	0.00	0.00	0.00	12.00	0.00	0.00	0.00	0.00	0.00	15.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0
Hammerhead	1	VC	1	41	0.41	0	0	0	2	40	58	0	80.00	5.00	0.00	0.00	3.00	0.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	trace	0	0	0	0	0	0	0	0	0	0
Hammerhead	2	VC	1	5	0.06	0	x	0	2	30	70	0	70.00	2.00	0.00	0.00	0.00	0.00	16.00	0.00	trace	0.00	0.00	0.00	10.00	0.00	0.00	0.00	trace	0	0	trace	0	0	0	0	0	2	0
Hammerhead	2	VC	1	20	0.21	0	0	0	3	30	67	0	80.00	2.00	0.00	0.00	1.00	0.00	14.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0	0	0	0	0	0	trace	0	0	0	0
Hammerhead	2	VC	1	28	0.29	0	0	0	6	29	65	0	83.00	2.00	0.00	trace	0.00	3.00	10.00	3.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0	0	0	trace	0	0	trace	0	0	0	0
Hammerhead	2	VC	1	40	0.41	0	x	0	2	30	70	0	70.00	2.00	0.00	0.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	8.00	0.00	0.00	0.00	trace	0	0	0	0	0	0	0	0	0	0
Hammerhead	2	VC	1	55	0.56	0	0	0	4	26	70	0	78.00	4.00	0.00	0.00	0.00	0.00	16.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0
Hammerhead	2	VC	1	74	0.75	0	0	0	8	25	68	0	87.00	0.00	0.00	0.00	0.00	2.00	11.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0
Hammerhead	2	VC	1	80	0.81	0	0	0	4	36	60	0	75.00	2.00	0.00	0.00	1.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0	0	0	0	0	0	0	0	0	0	0
Hammerhead	2	VC	1	95	0.96	0	0	0	8	22	70	0	80.00	2.00	0.00	0.00	1.00	2.00	13.00	2.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1	0	0	0	0	0	trace	0	0	0	0
Hammerhead	2	VC	2	111	1.12	0	0	0	10	30	60	0	85.00	2.00	0.00	0.00	0.00	f	12.00	f	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0
Hammerhead	3	VC	3	8	0.08	0	x	0	5	20	75	0	70.00	2.00	0.00	0.00	0.00	0.00	15.00	0.00	0.00	0.00	0.00	0.00	10.00	0.00	0.00	trace	0	0	0	0	0	0	0	0	0	3	0
Hammerhead	3	VC	2	62	0.62	0	x	0	1	24	75	0	80.00	2.00	trace	0.00	0.00	0.00	13.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0
Hammerhead	2	PC	7	66	0.66	0	x	0	1	19	80	0	57.00	2.00	0.00	0.00	0.00	0.00	40.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0	0	0	trace	0	0	trace	0	0	0	0
Hammerhead	2	PC	3	121	1.96	28	x	0	1	19	80	0	49.00	0.00	0.00	0.00	0.00	10.00	40.00	10.00	0.00	0.00	0.00	0.00	trace	0.00	0.00	0.00	0	0	0	0.5	0	0	0.5	0	0	0	0
Hammerhead	2	PC	3	30	4.12	n/a	x	0	1	19	80	0	49.00	0.00	0.00	0.00	0.00	10.00	40.00	10.00	0.00	0.00	0.00	0.00	trace	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0
Hammerhead	2	PC	1	249	6.32	36	x	0	0	5	95	0	52.00	2.00	1.00	0.00	0.00	0.00	45.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	trace	0
Hammerhead	3	PC	7	8	0.08	38	x	0	0	5	95	0	20.00	1.00	1.00	0.00	0.00	1.00	75.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0	0	0	2	0	0	0	0	0	0	0
Hammerhead	3	PC	5	171	2.62	43	x	0	0	2	98	0	50.00	0.00	trace	0.00	0.00	0.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	trace	0	0	0	0	0	0	trace	0
Hammerhead	3	PC	3	38	4.34	46	x	0	0	5	95	0	60.00	trace	trace	0.00	0.00	0.00	40.00	0.00	0.00	0.00	0.00	0.00	trace	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	trace	0
Hammerhead	3	PC	1	234	6.3	50	x	0	0	10	90	0	85.00	0.00	2.00	0.00	0.00	3.00	10.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	trace	0	0	0	0	0	0	0	0	0	trace	0
Hammerhead	3	PC	1	234	6.3	50	x	0	0	10	90	0	85.00	0.00	2.00	0.00	0.00	3.00	10.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	trace	0	0	0	0	0	0	0	0	0	trace	0
Hammerhead	4	PC	4	2	0.03	52	x	0	0	10	90	0	5.00	0.00	0.00	0.00	0.00	0.00	94.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	trace	0	0	trace	0	trace	0	0	0	trace	0
Hammerhead	4	PC	3	22	1.07	56	x	0	0	2	98	0	11.00	3.00	0.00	2.00	0.00	0.00	82.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	trace	0
Hammerhead	4	PC	1	228	3.13	60	x	0	0	3	97	0	12.00	1.00	0.00	1.00	0.00	0.00	85.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0	0	0	0	0	trace	0	0	0	0	0
Hammerhead	4	PC	1	285	3.7	63	x	0	0	5	95	0	11.00	1.00	0.00	1.00	0.00	5.00	81.00	5.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	trace	0
Thetis	6	PC	5	0	0.01	65	x	0	0	2	98	0	11.00	1.00	0.00	0.00	0.00	0.00	86.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	1	0	1	0	0	0	0	0
Thetis	6	PC	5	8	0.09	66	x	0	0	4	96	0	10.00	0.00	0.00	0.00	0.00	0.00	87.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	2	0	0	1	0	0	0	0
Thetis	6	PC	1	250	2.97	72	x	0	0	4	96	0	10.00	0.00	0.00	0.00	0.00	0.00	88.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	trace	2	0	0	0	0	trace	0
Thetis	6	PC	3	80	1.27	68	x	0	0	10	90	0	25.00	0.00	0.00	0.00	0.00	1.00	70.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	trace	2	0	0	2	0	0	0	0
Thetis	6	PC	1	50	2.96	0	x	0	1	30	69	0	25.00	tr	tr	tr	0.00	0.00	51.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00	tr	0.00	0	0	3	2	1	10	0	0	0	3	0
Thetis	6	PC	5	8	0.08	0	x	0	2	15	83	0	40.00	tr	0.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00	0.00	0.00	3.00	0.00	0.00	0.00	0	0	0	0	0	1	0	0	0	1	0
Thetis	6	PC	3	80	1.26	0	x	0	2	30	68	0	35.00	tr	tr	0.00	0.00	0.00	40.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00	0	0	0	0	0	15	1	0	0	5	0
Thetis	7	PC	2	4	0.05	73	x	0	0	40	60	0	95.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	trace	0.00	0	0	0	0	0	0	0	0	0	0	0
Thetis	7	PC	1	130	1.31	77	x	0	2	40	58	0	85.00	2.00	0.00	1.00	0.00	1.00	11.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	trace	0
Thetis	7	PC	1	30	1.3	0	x	0	15	30	55	0	70.00	4.00	4.00	tr	0.00	0.00	8.00	0.00	0.00	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0	0	5	0	0	0	0	0	0	3	0
Thetis	8	PC	3	73	0.74	80	x	0	75	23	2	0	90.00	5.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0
Thetis	8	PC	1	23	2.23	0	0	x	20	20	60	0	65.00	5.00	3.00	1.00	0.00	0.00	11.00	0.00	0.00	0.00	0.00	0.00	10.00	0.00	0.00	0.00	0	0	3	0	0	0	0	0	0	2	0
Thetis	8	PC	2	23	1.23	0	x	0	5	35	60	0	30.00	tr	tr	0.00	0.00	0.00	54.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00	0.00	0.00	0	0	10	0	0	0	0	0	0	1	0
Thetis	8	PC	3	7	0.07	0	x	0	10	25	65	0	25.00	2.00	tr	0.00	0.00	tr	62.00	tr	0.00	0.00	0.00	0.00	10.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	1	0
Thetis	9	PC	3	43	1.55	0	x	0	10	40	60	0	30.00	tr	tr	0.00	0.00	0.00	52.00	0.00	1.00	0.00	0.00	0.00	5.00	0.00	0.00	0.00	0	0	5	1	0	tr	1	0	0	5	0
Thetis	9	PC	1	54	3.66	0	x	0	15	35	50	0	40.00	2.00	1.00	0.00	0.00	tr	35.00	tr	0.00	0.00	0.00	0.00	7.00	0.00	0.00	0.00	0	0	0	tr	0	0	tr	0	0	15	0
Thetis	9	PC	5	44	0.44	0	x	0	10	20	70	0	65.00	2.00	1.00	tr	0.00	0.00	26.00	0.00	0.00	0.00	0.00	0.00	3.00	0.00	0.00	0.00	0	0	1	1	0	tr	tr	0	0	1	0
Thetis	9	PC	2	4	0.04	0	x	0	5	15	80	0	20.00	3.00	1.00	tr	0.00	1.00	48.00	1.00	0.00	0.00	0.00	0.00	8.00	0.00	0.00	0.00	0	0	15	0	0	3	0	0	0	1	0
Halkett	10	PC	6	81	0.81	0	x	0	2	35	63	0	30.00	2.00	tr	tr	0.00	0.00	47.00	0.00	2.00	0.00	0.00	0.00	5.00	0.00	0.00	0.00	0	0	0	1	0	0	0	0	0	3	0
Halkett	10	PC	2	42	4.3	0	x	0	5	25	70	0	60.00	3.00	tr	tr	0.00	0.00	18.00	0.00	0.00	0.00	0.00	0.00	15.00	0.00	0.00	0.00	0	0	1	1	0	0	0	0	0	2	0
Halkett	10	PC	2	37	4.25	0	x	0	2	20	78	0	12.00	1.00	0.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00	0	0	3	0	0	0	0	0	0	1	0
Halkett	10	PC	4	38	2.38	0	x	0	5	15	80	0	65.00	2.00	tr	0.00	0.00	0.00	14.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00	0	0	0	3	0	0	tr	0	0	2	0

2.4 COARSE FRACTION DESCRIPTIONS

Coarse fraction samples were prepared by wet sieving using a 63 µm sieve and ~1 cc of sediment. The coarse fractions are used to identify the relative abundances of the larger biogenic, mineral, lithic, and organic components. Together with the smear slide descriptions these data provide a thorough illustration of the presence and distribution of sedimentary components throughout the core. Examples of coarse fraction observations are shown in Table 2, similar to those from the smear slide analyses. For the full spreadsheet workbook of coarse fraction observations please see the original data file in EDX.

Table 2 MITAS-2009 Snapshot of Coarse Fraction Data

MITAS PS2009-09 Coarse Fraction Summary

Sample Information							Coarse Fraction: Lithology			Minerals (Visual Est. %)													Biogenic (Visual Est. %)										
Transect	Core	Type	Section	Top Depth (cm in Section)	Depth of Sample (mbsf)	Sample #	Dominant	Minor	Photo	Quartz	Feldspar	Mica	Heavy Minerals	Volcanic Glass	Iron Sulfides	Pyrite	Framboidal Pyrite	Carbonate	Lithic Fragments	Amphibole	Chert Grains	Other minerals	Foraminifera	Carbonate Fragments (shell or detrital)	Diatoms	Radiolarians	Siliceous Shell Fragments	Sponge Spicules	Silicoflagellates	Fish Remains	Plant/Wood Debris	Bivalve	Other
Hammerhead	1	VC	1	2	0.03	0	x	0	0	80	3	2	0	0	0	0	0	0	15	0	0	0	trace	trace	0	0	0	0	0	0	0	0	trace
Hammerhead	1	VC	1	33	0.34	0	x	0	0	75	2	1	0	0	0	0	0	0	18	0	0	1	1	0	0	0	0	0	0	0	1	0	1
Hammerhead	2	VC	1	5	0.06	0	x	0	0	85	2	1	trace	0	0	0	0	0	12	0	0	0	trace	trace	0	0	0	0	0	0	0	0	0
Hammerhead	2	VC	1	40	0.41	0	x	0	0	80	6	2	0	0	0	0	0	0	10	0	0	0	1	0	0	0	0	trace	0	0	1	0	trace
Hammerhead	3	VC	3	8	0.08	16	x	0	0	73	5	1	0	0	0	0	0	0	15	0	0	0	3	0	0	0	0	0	0	0	2	0	1
Hammerhead	3	VC	1	66	0.66	0	x	0	0	80	3	0	0	0	0	0	0	0	17	0	0	0	trace	0	0	0	0	0	0	0	0	0	0
Hammerhead	3	VC	2	61	1.62	20	x	0	0	55	3	tr	0	0	0	0	0	0	38	0	0	0	3	0	0	0	0	0	0	0	0	0	0
Hammerhead	3	VC	3	66	2.66	23	x	0	0	89	2	1	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hammerhead	2	PC	7	65	0.66	0	x	0	0	85	3	1	0	0	0	0	0	0	10	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Hammerhead	2	PC	5	21	0.21	0	x	0	0	80	2	2	0	0	0	0	0	0	14	0	0	0	1	1	0	0	0	0	0	0	0	0	0
Hammerhead	2	PC	1	51	0.51	0	x	0	0	89	2	1	0	0	0	0	0	0	5	0	0	0	2	1	0	0	0	0	0	0	0	0	0
Hammerhead	2	PC	5	96	1.96	28	x	0	0	61	1	tr	0	0	0	0	0	0	30	0	0	0	5	tr	0	0	0	0	0	1	2	0	0
Hammerhead	2	PC	3	13	4.13	0	x	0	0	12	tr	tr	0	0	0	0	0	0	78	0	0	0	8	0	0	0	0	0	0	0	2	0	0
Hammerhead	2	PC	1	32	6.32	36	x	0	0	80	3	1	1	0	0	0	0	0	8	0	0	0	7	0	0	0	0	0	0	0	0	0	0
Hammerhead	3	PC	7	7	0.08	38	x	0	0	84	3	2	0	0	0	0	0	0	8	0	0	0	1	0	0	0	0	0	0	0	2	0	0
Hammerhead	3	PC	5	72	2.62	43	x	0	0	78	2	tr	0	0	0	0	0	0	15	0	0	0	3	tr	0	0	0	tr	0	0	2	0	0
Hammerhead	3	PC	3	39	4.34	0	x	0	0	5	tr	tr	0	0	0	0	0	0	89	0	0	0	5	tr	0	0	0	0	0	0	1	0	0
Hammerhead	3	PC	1	35	6.3	50	x	0	0	32	2	1	tr	0	0	0	0	0	60	0	0	0	4	tr	0	0	0	0	0	0	1	0	0
Hammerhead	4	PC	4	2	0.03	52	x	0	0	22	tr	tr	0	0	0	0	0	0	75	0	0	0	3	0	0	0	0	tr	0	0	0	0	0
Hammerhead	4	PC	3	22	1.07	56	x	0	0	62	2	1	0	0	0	0	0	0	35	0	0	0	0	0	0	0	0	0	0	0	tr	0	0
Hammerhead	4	PC	1	28	3.13	60	x	0	0	60	1	tr	tr	0	0	0	0	0	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hammerhead	4	PC	1	85	3.7	63	x	0	0	44	2	1	0	0	0	0	0	0	50	0	0	0	0	tr	0	0	0	0	0	0	1	0	0
Thetis Island	6	PC	5	0	0.01	65	x	0	0	60	3	2	0	0	0	0	0	0	35	0	0	0	0	trace	0	0	0	0	0	0	trace	0	0
Thetis Island	6	PC	5	8	0.9	66	x	0	0	72	2	tr	0	0	0	0	0	0	25	0	0	0	tr	0	0	0	0	0	0	0	1	0	0
Thetis Island	6	PC	3	80	1.27	68	x	0	0	50	3	2	0	0	0	0	0	0	40	0	0	0	0	0	0	0	0	0	0	0	5	0	0
Thetis Island	6	PC	1	50	2.97	0	x	0	0	60	1	tr	0	0	0	0	0	0	38	0	0	0	1	0	0	0	0	0	0	0	tr	0	0
Thetis Island	7	PC	2	4	0.04	73	x	0	0	80	1	tr	tr	0	0	tr	0	0	18	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Thetis Island	7	PC	1	30	1.31	77	x	0	0	48	4	tr	0	0	0	tr	0	0	48	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thetis Island	8	PC	3	6	0.07	78	x	0	0	60	3	1	0	0	0	0	0	0	30	0	0	0	0	1	0	0	0	0	0	0	5	0	0
Thetis Island	8	PC	3	73	0.74	80	x	0	0	75	4	trace	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Thetis Island	8	PC	2	22	1.23	82	x	0	0	80	3	1	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	5	0	0
Thetis Island	8	PC	1	222	2.23	85	0	x	0	75	3	trace	1	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Thetis Island	9	PC	5	44	0.45	0	x	0	0	80	3	2	0	0	0	0	0	0	12	0	0	0	trace	1	0	0	0	0	0	0	2	0	0
Thetis Island	9	PC	3	42	1.55	89	x	0	0	83	1	tr	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	1	0	0	5	0	0
Thetis Island	9	PC	1	54	3.66	0	x	0	0	60	2	tr	0	0	0	0	0	0	10	0	0	0	0	5	0	0	0	0	0	3	20	0	0
Halkett	10	PC	6	80	0.81	96	x	0	0	79	3	1	0	0	0	0	0	0	15	0	0	0	tr	0	0	0	0	0	0	0	2	0	0
Halkett	10	PC	4	38	2.39	99	x	0	0	68	3	1	0	0	0	0	0	0	25	0	0	0	0	0	0	0	0	0	0	0	3	0	0
Halkett	10	PC	2	37	4.26	103	x	0	0	79	1	tr	tr	0	0	0	0	0	18	0	0	0	0	1	0	0	0	0	0	0	1	0	0
Halkett	10	PC	2	43	4.31	104	x	0	0	75	5	3	1	0	0	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Halkett	11	PC	5	52	0.153	110	x	0	0	80	3	2	0	0	0	0	0	0	11	0	0	0	3	0	0	0	0	tr	0	0	1	0	0
Halkett	11	PC	3	39	3.05	0	x	0	0	60	3	2	0	0	0	20	0	0	10	0	0	0	2	0	0	0	0	0	0	0	3	0	0
Halkett	11	PC	1	73	5.39	117	x	0	0	34	2	tr	0	0	0	0	0	0	60	0	0	0	3	tr	0	0	0	0	0	0	1	0	0
Halkett	12	PC	5	55	1.55	122	x	0	0	76	4	1	0	0	0	0	0	0	10	0	0	0	3	1	0	0	0	0	0	0	5	0	0
Halkett	12	PC	3	21	3.17	125	x	0	0	80	4	2	0	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Halkett	12	PC	1	42	5.38	129	x	0	0	60	5	3	0	0	0	0	0	0	15	0	0	0	0	17	0	0	0	0	0	0	0	0	0
Halkett	13	PC	7	78	0.79	132	x	0	0	70	3	1	0	0	0	0	0	0	17	0	0	0	3	0	0	0	0	1	0	0	5	0	0
Halkett	13	PC	5	92	2.92	136	x	0	0	27	2	1	0	0	0	0	0	0	20	0	0	0	5	tr	0	0	0	0	0	5	40	0	0
Halkett	13	PC	3	35	4.31	140	x	0	0	75	3	2	0	0	0	0	0	0	12	0	0	0	2	3	0	0	0	trace	0	0	3	0	0
Halkett	13	PC	1	21	5.78	143	x	0	0	40	3	2	0	0	0	0	0	0	18	0	0	0	0	35	0	0	0	0	0	0	2	0	0
Halkett	14	PC	7	8	0.09	144	x	0	0	80	2	2	0	0	0	0	0	0	10	0	0	0	1	0	0	0	0	0	0	0	5	0	0
Halkett	14	PC	5	38	1.77	0	x	0	0	50	2	3	0	0	0	0	0	0	15	0	0	0	2	25	0	0	0	0	0	0	3	0	0
Halkett	14	PC	3	423	4.24	152	0	0	0	60	3	1	0	0	0	0	0	0	11	0	0	0	5	0	0	0	0	0	0	0	20	0	0

2.5 XRD ANALYSIS

Samples for X-ray diffraction (XRD) analysis were collected from the cores at sea. Approximately 5 grams of sediment were dried in a low-temperature oven for typically 1-3 hours, with drying time varying based on water content and composition, and then ground by hand in a porcelain mortar and pestle to less than 150µm. Subsamples of these powders were analyzed on an InXitu Terra X-ray diffractometer using an XRD range of 5–55 degrees two-theta (2θ), Co K-alpha radiation, and a 2-D Pelier-cooled CCD detector. Mylar windows were used in the vertical sample holding cell. For most samples, 100 exposures were sufficient to identify major minerals, but samples with greater mineralogic diversity were run again with up to 250 exposures, in order to improve the clarity of the XRD profiles.

Sample mineralogy from XRD is reported in Table 3 as semi-quantitative weight percent and graphs showing relative quantities. Only major components were identified with confidence from the XRD analyses; low peak intensities and comparatively high backgrounds made the data unsuitable for other mineral analyses, thus, minerals other than the primary components are combined as “other.” In some cases possible “other” minerals of interest are noted. Carbonate minerals identified are typically dolomite or calcite; all other carbonates are difficult to identify due to variable background signals and are thus grouped as “other carbonates.”

Table 3 MITAS-2009 XRD Mineralogy Data

Core	Section	Depth (avg cmbsf)	Quartz	Illite	Other Clay	Feldspar	Calcite	Dolomite	Other Carbonate	Other Trace	Total Carbonate	Total Clay
PC02	S7	16	31	43	13	12	0	1	0	0	1	56
PC02	S7	66	25	44	17	10	0	0	0	4	0	61
PC02	S6	104	27	38	19	12	0	1	0	4	1	56
PC02	S6	156	30	52	4	12	0	2	0	1	2	56
PC02	S5	196	29	43	19	7	0	2	0	0	2	62
PC02	S5	226	24	54	10	10	0	3	0	0	3	63
PC02	S4	326	32	34	21	10	0	2	0	0	2	56
PC02	S4	346	26	41	19	11	0	3	0	1	3	59
PC02	S3	452	31	45	12	4	4	4	0	0	8	57
PC02	S2	496	28	49	8	8	3	0	0	4	3	57
PC02	S2	559	27	46	15	8	0	4	0	1	4	61
PC02	S1	632	28	33	18	12	4	4	0	1	8	51
PC02	S1	668	34	39	13	6	4	5	0	0	8	52

Core	Section	Depth (avg cmbsf)	Quartz	Illite	Other Clay	Feldspar	Calcite	Dolomite	Other Carbonate	Other Trace	Total Carbonate	Total Clay
PC03	S7	50	27	39	20	11	0	1	2	1	2	59
PC03	S6	109	24	41	17	11	0	1	5	0	6	59
PC03	S6	171	33	28	21	12	0	3	2	1	5	48
PC03	S5	214	27	42	12	11	0	1	3	3	5	54
PC03	S4	311	26	57	9	6	0	2	0	0	2	66
PC03	S4	354	27	47	16	6	0	3	3	0	5	63
PC03	S3	471	36	10	27	9	2	5	2	8	9	37
PC03	S2	511	30	50	13	0	0	3	1	4	5	63
PC03	S2	570	30	39	13	8	2	3	2	3	7	52
PC03	S1	646	25	42	16	11	1	1	1	2	3	58

Core	Section	Depth (avg cmbsf)	Quartz	Illite	Other Clay	Feldspar	Calcite	Dolomite	Other Carbonate	Other Trace	Total Carbonate	Total Clay
PC04	S4	3	20	26	33	17	0	2	2	0	4	59
PC04	S4	41	27	39	26	0	0	2	0	8	2	64
PC04	S4	57	20	43	21	8	0	0	1	8	1	64
PC04	S4	63	42	35	10	8	0	0	4	3	4	45
PC04	S3	107	28	42	25	2	1	0	2	0	2	67
PC04	S3	177	35	36	16	6	1	3	0	2	4	52
PC04	S2	188	18	24	15	15	1	5	0	20	6	39
PC04	S2	267	24	37	16	9	2	7	0	5	9	53
PC04	S1	313	31	24	17	5	2	4	6	14	11	41
PC04	S1	339	31	38	8	5	1	17	0	0	18	46
PC04	S1	351	30	16	10	8	8	16	9	3	33	26
PC04	S1	370	29	29	11	10	0	1	9	10	10	40

Table 3 MITAS-2009 XRD Mineralogy Data (continued)

Core	Section	Depth (avg cmbsf)	Quartz	Illite	Other Clay	Feldspar	Calcite	Dolomite	Other Carbonate	Other Trace	Total Carbonate	Total Clay
PC06	S5	1	26	36	22	13	0	0	0	4	0	58
PC06	S5	9	20	34	26	17	0	0	0	3	0	60
PC06	S4	44	27	32	13	12	0	1	5	9	6	45
PC06	S3	127	23	48	8	9	0	0	2	10	2	56
PC06	S2	165	24	46	18	7	0	0	3	2	3	64
PC06	S2	242	21	53	16	10	0	0	1	0	1	68
PC06	S1	271	24	43	21	9	0	0	3	0	3	63
PC06	S1	297	26	44	22	7	0	0	2	0	2	66

Core	Section	Depth (avg cmbsf)	Quartz	Illite	Other Clay	Feldspar	Calcite	Dolomite	Other Carbonate	Other Trace	Total Carbonate	Total Clay
PC07	S2	5	26	50	13	7	2	2	0	0	4	63
PC07	S2	39	29	46	13	3	2	1	1	3	5	60
PC07	S1	48	26	40	21	7	0	1	1	4	2	61
PC07	S1	111	33	49	9	5	1	0	2	1	3	58
PC07	S1	131	38	39	19	0	0	0	3	2	3	57

Core	Section	Depth (avg cmbsf)	Quartz	Illite	Other Clay	Feldspar	Calcite	Dolomite	Other Carbonate	Other Trace	Total Carbonate	Total Clay
PC08	S3	7	29	36	14	15	1	2	2	2	5	51
PC08	S3	62	22	42	19	9	4	4	0	0	8	61
PC08	S3	74	63	9	0	9	8	11	0	1	19	9
PC08	S3	79	48	15	11	9	8	7	3	0	18	25
PC08	S2	123	41	30	9	4	7	2	3	3	13	38
PC08	S1	203	38	37	14	0	5	0	6	2	10	50
PC08	S1	223	30	30	18	7	4	0	2	9	6	48

Core	Section	Depth (avg cmbsf)	Quartz	Illite	Other Clay	Feldspar	Calcite	Dolomite	Other Carbonate	Other Trace	Total Carbonate	Total Clay
PC09	S5	9	32	35	15	12	0	3	2	2	5	51
PC09	S5	45	30	31	18	14	0	0	6	2	6	49
PC09	S4	83	37	32	11	13	0	0	6	1	6	43
PC09	S3	155	37	25	18	12	0	0	7	0	7	44
PC09	S3	207	31	40	12	9	0	0	5	4	5	52
PC09	S2	241	35	29	17	10	0	1	6	1	7	46
PC09	S2	283	32	29	18	11	0	4	4	3	7	47
PC09	S1	343	25	25	18	25	0	0	0	7	0	43
PC09	S1	366	35	25	24	14	0	0	3	0	3	48

Table 3 MITAS-2009 XRD Mineralogy Data (continued)

Core	Section	Depth (avg cmbsf)	Quartz	Illite	Other Clay	Feldspar	Calcite	Dolomite	Other Carbonate	Other Trace	Total Carbonate	Total Clay
PC10	S6	14	31	25	18	17	0	0	7	3	7	43
PC10	S5	137	21	39	24	15	0	1	0	1	1	62
PC10	S5	181	22	37	18	18	0	1	3	1	4	55
PC10	S4	283	30	32	15	13	0	3	3	4	6	47
PC10	S3	310	25	27	27	16	0	0	4	0	4	55
PC10	S3	369	30	31	15	14	0	0	5	6	5	46
PC10	S2	455	23	45	13	13	0	0	1	5	1	59
PC10	S1	515	34	42	19	5	0	0	0	0	0	61
PC10	S1	539	31	36	16	10	0	0	2	6	2	52

Core	Section	Depth (avg cmbsf)	Quartz	Illite	Other Clay	Feldspar	Calcite	Dolomite	Other Carbonate	Other Trace	Total Carbonate	Total Clay
PC11	S6	6	50	15	10	22	0	0	0	3	0	25
PC11	S6	57	38	41	4	14	0	1	0	3	1	46
PC11	S5	193	40	42	3	14	0	1	0	0	1	46
PC11	S3	269	36	48	6	9	0	1	0	0	1	54
PC11	S2	369	37	47	3	10	0	1	0	2	1	49
PC11	S2	441	36	45	7	11	0	1	0	1	1	51
PC11	S1	475	39	42	2	13	0	1	0	3	1	44
PC11	S1	534	41	31	6	18	0	2	0	3	2	37

Core	Section	Depth (avg cmbsf)	Quartz	Illite	Other Clay	Feldspar	Calcite	Dolomite	Other Carbonate	Other Trace	Total Carbonate	Total Clay
PC12	S6	29	37	35	13	8	2	2	2	0	6	49
PC12	S6	81	36	27	15	18	0	1	3	0	4	42
PC12	S4	231	33	32	17	17	0	1	0	1	1	49
PC12	S4	269	30	28	21	15	0	1	4	2	5	48
PC12	S2	410	32	41	10	12	0	1	3	2	4	51
PC12	S5	450	31	32	15	15	1	0	5	2	5	48
PC12	S1	538	30	23	25	13	0	1	3	7	4	47
PC12	S1	594	16	9	22	25	1	3	2	21	6	31

Core	Section	Depth (avg cmbsf)	Quartz	Illite	Other Clay	Feldspar	Calcite	Dolomite	Other Carbonate	Other Trace	Total Carbonate	Total Clay
PC13	S6	123	23	44	14	12	0	1	2	4	3	58
PC13	S5	213	21	38	20	19	0	0	1	0	1	58
PC13	S4	310	32	37	13	11	0	2	4	1	5	50
PC13	S4	354	27	21	25	17	1	2	2	5	5	46
PC13	S2	499	30	39	16	11	0	1	3	0	4	55
PC13	S2	533	30	41	15	10	0	1	3	0	5	56

Table 3 MITAS-2009 XRD Mineralogy Data (continued)

Core	Section	Depth (avg cmbsf)	Quartz	Illite	Other Clay	Feldspar	Calcite	Dolomite	Other Carbonate	Other Trace	Total Carbonate	Total Clay
PC14	S7	9	42	45	6	6	0	1	0	0	1	51
PC14	S6	109	40	43	5	12	0	1	0	0	1	48
PC14	S5	227	38	43	5	11	0	0	0	2	0	49
PC14	S4	312	38	42	7	12	0	1	0	0	1	49
PC14	S3	424	49	15	9	22	0	2	0	4	2	23
PC14	S2	500	45	25	6	19	0	2	0	3	2	31
PC14	S1	624	39	39	6	13	0	1	0	2	1	45

Core	Section	Depth (avg cmbsf)	Quartz	Illite	Other Clay	Feldspar	Calcite	Dolomite	Other Carbonate	Other Trace	Total Carbonate	Total Clay
VC01		2	59	13	2	6	7	14	0	0	21	14
VC01		9	35	21	4	4	29	4	0	3	33	25
VC01		22	31	37	3	0	24	6	0	0	30	40
VC01		34	29	34	3	3	27	6	0	0	32	37
VC01		41	33	36	4	0	24	4	0	0	28	40

Core	Section	Depth (avg cmbsf)	Quartz	Illite	Other Clay	Feldspar	Calcite	Dolomite	Other Carbonate	Other Trace	Total Carbonate	Total Clay
VC02		6	44	33	7	7	1	7	0	0	9	40
VC02		21	51	24	6	13	1	5	0	0	7	30
VC02		41	48	18	13	5	1	7	0	7	9	31
VC02		56	51	17	13	11	0	8	0	0	8	30
VC02		96	45	35	2	10	0	8	0	0	8	37
VC02		111	37	26	13	14	7	2	0	1	9	39

Core	Section	Depth (avg cmbsf)	Quartz	Illite	Other Clay	Feldspar	Calcite	Dolomite	Other Carbonate	Other Trace	Total Carbonate	Total Clay
VC03	S1	8	42	39	4	7	2	6	0	0	8	43
VC03	S1	58	42	25	8	8	2	16	0	0	18	32
VC03	S1	84	45	33	5	6	3	7	0	0	10	38
VC03	S2	162	37	38	10	5	2	8	0	0	10	48
VC03	S2	184	44	33	3	7	3	7	0	3	10	37
VC03	S3	224	28	42	10	7	3	9	0	2	11	52

No specific procedures were conducted to discriminate between similar-structured clay minerals. Illite is a major component in the majority of the data patterns, but the reported weight estimates may also include interstratified clays containing illite layers. All other clays are reported together. All clays, including illite, are grouped together in the output table (Table 3) and graphs (Appendix 4).

Based on XRD profiles, minerals were identified using MDI's JADE 9 software and accompanying pattern database. Semi-quantitative weight percent estimates were determined using JADE's pattern simulation function, which uses reference intensity ratios to simulate a diffraction pattern based on identified phases and a least-squares calculation to fit the simulated pattern to the observed. From the fitted pattern, weight percent values are estimated using Chung's matrix flushing procedure (Chung, 1974).

2.6 GRAIN SIZE ANALYSIS

Laser diffraction particle size analysis was conducted using a Malvern Mastersizer 2000 with a Hydro-G dispersion unit. Samples were collected at sea and measured post-expedition at NETL. Approximately 1 g of sediment was dispersed in 20 mL of 5.4g/L sodium hexametaphosphate solution with no prior preparation. Samples were agitated on a mini-roto agitator and allowed to sit overnight, to aid dispersion, before being analyzed on the Mastersizer, which used water as a primary dispersant. The analysis procedure followed the protocol established by Sperazza, et al. (2004).

3. LITHOSTRATIGRAPHIC DATA

3.1 VISUAL CORE DESCRIPTIONS

Sediments recovered in the vibra and piston cores across the shelf and onto the slope ranged, in the dominant lithology, from clayey silt to silty clay and often contained (as minor lithologies) millimeter to centimeter scale beds of silt, sand, and even gravel sized particles. Textural names were used to name the sediments using smear slide and visual observations (sand, silt, and clay percent estimates) and the textural classification scheme of (Shepard, 1954) (Figure 5). Most of the cores contained dark grey to black iron sulfide precipitates throughout. Authigenic carbonates are rare but were observed in cores PC06, PC07, and PC12. Visible terrestrial organic matter and calcium carbonate shell remains were observed in most cores, as discrete particles and beds. Cores on the shelf were generally firmer (well indurated) than those on the slope. Core degassing cracks were observed in several cores near the shelf break and onto the slope. VCD information, as well as measured grain size and the line scan camera core images are compiled for each vibra and piston core on a digital VCD sedimentary log (Appendix 2). Each VCD log consists of a one-page, full core summary followed by expanded section by section logs.

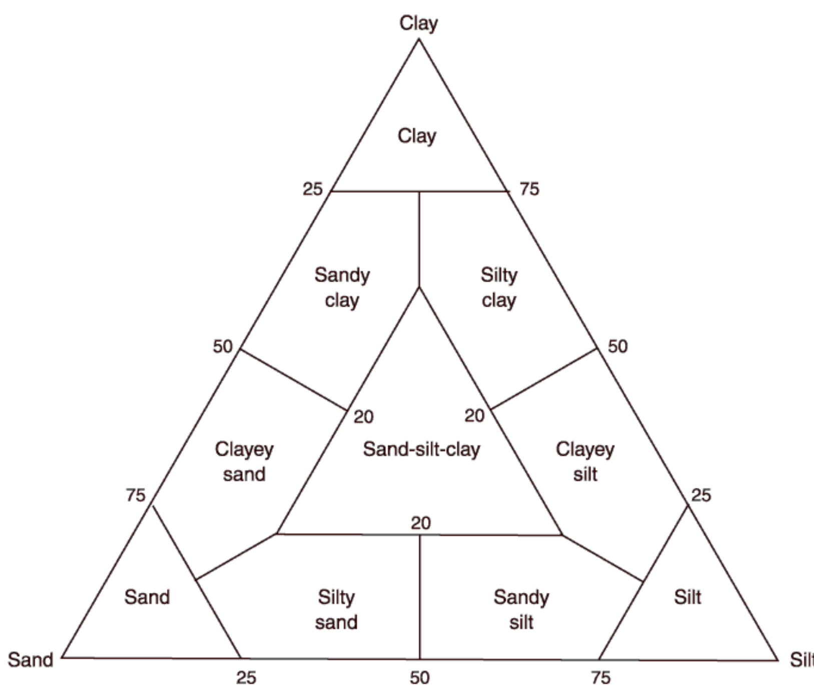

Figure 5. Textural classification scheme for siliciclastic sediment components from Shepard (1954)

3.2 SMEAR SLIDE DESCRIPTIONS

A total of 56 smear slide samples were described at a resolution of one to six samples per core in the Hammerhead transect and one to four samples per core in the Thetis transect. Five samples were described from PC10 in the Halkett transect. Additional smear slides were not collected at sea due to time constraints and the prioritization of XRD and coarse fraction analyses, which were determined to be better techniques for characterizing these sediments. Full descriptions of the smear slide analyses that were completed are documented in Table 1 and are summarized by core below.

Core Summaries

Core VC01 smear slides contain approximately 70-80% clay, 20-40% silt, and 1-10% sand. The mineral assemblage is composed of approximately 70% quartz, 10-15% clay minerals, 0-15% lithic fragments, 1-5% feldspar, and less than 5% mica, volcanic glass, glauconite, and iron sulfides.

Core VC02 smear slides contain approximately 60-70% clay, 22-36% silt, and 2-10% sand. The mineral assemblage is composed of approximately 70-87% quartz, 12-20% clay minerals, 0-10% lithic fragments, and less than 5% each of feldspar, heavy minerals, pyrite, authigenic carbonate, diatoms, sponge spicules, and plant debris. Lithic fragments decrease down core and are only present in the top 0.5 m of the core.

Core VC03 smear slides contain approximately 75% clay, 20-24% silt, and 1-5% sand. The mineral assemblage is composed of approximately 70-80% quartz, 13-15% clay minerals, 5-10% lithic fragments, and less than 5% each of feldspar, mica, and plant debris.

Core PC02 smear slides contain approximately 80-95% clay, 5-19% silt, and 0-1% sand. The mineral assemblage is composed of approximately 49-57% quartz, 40-45% clay minerals, and less than 5% each of lithic fragments, feldspar, mica, heavy minerals, carbonate shell fragments, pyrite, dolomite, authigenic carbonate, hornblende, diatoms, sponge spicules, and plant debris.

Core PC03 smear slides contain approximately 90-98% clay, 30-40% silt, and 5-10% sand. The mineral assemblage is composed of approximately 20-80% quartz, 10-75% clay minerals, and less than 5% each of feldspar, mica, glauconite, iron sulfides, carbonate shell fragments, diatoms, and plant debris. Quartz content increases down core while clay content decreases down core.

Core PC04 smear slides contain approximately 90-98% clay and 2-10% silt. The mineral assemblage is composed of approximately 5-12% quartz, 81-94% clay minerals, and less than 5% each of lithic fragments, feldspar, heavy minerals, foraminifera, diatoms, siliceous shell fragments, and plant debris.

Core PC06 smear slides contain approximately 90-98% clay and 2-10 % silt. The mineral assemblage is composed of approximately 11-25% quartz, 70-88% clay minerals, and less than 5% each of feldspar, carbonate shell fragments, hornblende, diatoms, sponge spicules, radiolarians, and plant debris. One sample at 2.96 m contains 10% siliceous shell fragments.

Core PC07 smear slides contain approximately 58-60% clay, 40% silt, and 0-2% sand. The mineral assemblage is composed of approximately 85-95% quartz, 5-11% clay minerals, and less than 5% each of feldspar, heavy minerals, and plant debris.

Core PC08 smear slides contain approximately 2-65% clay, 20-35% silt, and 5-75% sand. In general, the samples dominated by the clay fraction increases except for the sample in a coarse bed at 0.74 m. The mineral assemblage is composed of approximately 25-90% quartz, 1-62% clay minerals, 4-10% lithic fragments, up to 5% feldspar, less than 10% carbonate shell fragments, and less than 2% plant debris.

Core PC09 smear slides contain approximately 50-80% clay, 15-40% silt, and 5-15% sand. The mineral assemblage is composed of approximately 20-65% quartz, 26-52% clay minerals, 0-15%

carbonate shell fragments, 1-15% plant debris, 3-8% lithic fragments, and less than 5% each of feldspar, heavy minerals, diatoms, siliceous shell fragments, and sponge spicules.

Core PC10 smear slides contain approximately 63-80% clay, 15-35% silt, and 2-5% sand. The mineral assemblage is composed of approximately 30-65% quartz, 14-79% clay minerals, 4-15% lithic fragments, and less than 5% each of feldspar, heavy minerals, diatoms, carbonate shell fragments, plant debris, and sponge spicules.

3.3 COARSE FRACTION DESCRIPTIONS

A total of 55 coarse fraction (>63 µm) samples (two to four samples per core depending on length) were examined under a reflected light microscope (see Table 2). In general, most coarse fractions were dominated by quartz and lithic fragments, with minor and trace amounts (<5%) of feldspar, mica, heavy minerals, foraminifera, carbonate shell fragments, plant debris, and fish remains. In a minority of samples, plant debris and carbonate shell fragments were observed in fractions 5-40% of the sample. Summaries of the coarse fraction results for each core are provided below.

Core Summaries

The coarse fraction of core VC01 is dominated by quartz (>75%) with a significant lithic fraction (7-20%). Feldspar and mica are present in amounts 3% or less. Trace foraminifera, carbonate shell fragments, and plant debris are present.

VC02 coarse fractions are primarily composed of quartz (>80%) with 10-12% lithic fragments. Trace foraminifera, carbonate shell fragments, sponge spicules, and plant debris are present.

Core VC03 is dominantly composed of quartz (55-89%) and lithic fragments (8-38%). Feldspar content ranges from 2 to 5%, mica is present up to 1%, foraminfera are present up to 3%, and plant debris is present up to 2%.

Coarse fraction samples from PC02 are dominated by either quartz or lithic fragments. Three of five samples (0.21, 0.51, and 6.32 m) contain greater than 80% quartz with 5-14% lithic fragments, one sample (1.96 m) contains 60% quartz with 30% lithic fragments, and one sample (4.13 m) contains approximately 80% lithic fragments and 12% quartz. Feldspar and mica are present in amounts less than 3%. Foraminifera content increases with depth from 1 to 7%, plant debris is present up to 2%, and carbonate shell fragments compose up to 1%.

Coarse fraction samples from the upper sections of PC03 (0.08 and 2.62 m) are dominated by quartz (> 75%) with up to 15% lithic fragments, while the deeper sections (samples from 4.34 and 6.30 m) are dominated by lithic fragments (60-90%) with 5-35% quartz. Feldspar and mica are present in amounts less than 3%. Foraminifera content increases with depth from 1 to 4%, and carbonate shell fragments compose up to 1%. Organic matter is present as 1-2% in PC03 samples.

A coarse fraction sample from the upper section of PC04 is dominated by lithic fragments (75%) with approximately 20% quartz, 3% foraminifera, 1% plant debris, and traces of feldspar and mica. Samples from the middle sections of the core have higher quartz content (approximately 60%) with 35-40% lithic fragments, up to 2% feldspar, up to 1% mica, and traces of organic matter.

The coarse fraction of PC06 is primarily composed of quartz (50-75%) and lithic fragments (25-40%). Organic matter composes 5% of the sample with up to 3% feldspar, 2% mica, and 1% foraminifera.

The core top of PC07 (0.04 m) is quartz-dominated (80%) with approximately 18% lithic fragments, 1% feldspar, 1% organic matter. Trace mica and pyrite are present. The lower section of PC07 (1.31 m) is approximately equally composed of quartz and lithic fragments, with 4% feldspar, trace mica, and trace pyrite.

The coarse fraction of PC08 is primarily quartz (60-80%) with 10-30% lithic fragments. Minor constituents include feldspar (3-4%), plant debris (1-5%), carbonate shell fragments (1%), and trace mica.

The coarse fraction of PC09 is primarily quartz (60-85%) with 10-15% lithic fragments. Plant debris is present from 2 to 20% of the sample, increasing with depth. The sample at 3.66 m contains fish remains. Minor constituents include feldspar (1-3%), carbonate shell fragments (1-5%), mica (up to 2%), and trace foraminifera.

The coarse fraction of PC10 is primarily quartz (65-80%) with 15-25% lithic fragments. Minor constituents include feldspar (1-5%), mica (trace to 3%), carbonate shell fragments (1%), and trace foraminifera. Plant debris is present from 1 to 3% of the sample.

In core PC11, quartz decreases with depth from 80% at 0.15 m to 34% at 5.39 m. Conversely, lithic fragments increase with depth from 11% at 0.15 m to 60% at 5.39 m. There is a pyritized burrow in the sample at 3.05 m (approximately 20% pyrite). Minor constituents include feldspar (2-3%), mica (trace to 2%), plant debris (1-3%), foraminifera (2-3%), and a trace of carbonate shell fragments.

The coarse fraction of PC12 is primarily composed of quartz (60-80%) and lithic fragments (10-15%). One sample at 5.38 m contains 17% carbonate shell fragments. Plant material decreases down the core from 5% at 1.55 m to 1% at 5.38 m. Feldspar content ranges from 4 to 5%, mica is present between 1 and 3%, and foraminfera are present at 3% in the sample at 1.55 m.

Coarse fraction samples at PC13 show a varied composition down core, but with no consistent trend. The uppermost sample at 0.79 m contains 70% quartz, 17% lithic fragments, 5% plant debris, and 3% foraminifera. The sample at 2.92 m is organic matter rich with 40% plant debris, 27% quartz, 20% lithic fragments, 5% fish remains, and 5% foraminifera. The sample at 4.31 m contains 75% quartz, 12% lithic fragments, 3% plant debris, 3% carbonate shell fragments, and 2% foraminifera. The lowermost sample at 5.78 m contains 40% quartz, 35% carbonate shell fragments, 18% lithic fragments, and 2% plant debris. All samples at PC13 contain 2-3% feldspar and 1-2% mica.

The uppermost coarse fraction sample from core PC14 at 0.09 m is composed of 80% quartz, 10% lithic fragments, 5% plant debris, and 1% foraminifera. At 1.77 m the coarse fraction is composed of 50% quartz, 25% carbonate shell fragments, 15% lithic fragments, 3% plant debris and 2% foraminifera. The lowermost sample from 4.24 m is composed of 60% quartz, 20% plant debris, 11 lithic fragments, and 5% foraminifera. All samples at PC13 contain 2-3% feldspar and 1-3% mica.

3.4 XRD ANALYSES

A total of 118 sediment samples were compositionally analyzed using XRD techniques described above in Section 2.5. These analyses are summarized in Table 3 and Appendix 4. The primary lithology identified by XRD in all of the cores is roughly 45-65% clay, 20-30% quartz, and 5-15% feldspar, with trace amounts of carbonate minerals. Illite is the dominant clay mineral, generally comprising 30-50% of the sediment. Dolomite is typically the dominant carbonate mineral, and it is present at least in trace amounts in every core studied. Calcite is present in trace amounts in many cores, and the reported “other carbonates” may include ankerite, siderite, or rhodochrosite, though additional analyses should be used to confirm this. Variations from this type of mineralogy in individual cores are summarized below.

Core Summaries

PC02 is composed of the primary lithology described above. Calcite and dolomite are present in trace amounts at depth in the core, but above 452 cm below seafloor (cmbsf) calcite is absent. Dolomite decreases in quantity towards the top of the core and, in the top 100 cmbsf, is present in barely-detectable trace amounts.

PC03 is composed of the primary lithology. At 471 cmbsf and 171 cmbsf, the percent of clay decreases and quartz, carbonates, feldspar, and other trace minerals become slightly more abundant. Carbonates, primarily dolomite, are present in trace amounts throughout the core, but calcite is only present in the samples at 471 cmbsf and below.

In PC04, clay content increases from roughly 40 percent at the bottom of the core to 60-70% from 107 cmbsf to the top. Carbonates follow the reverse trend, in quantities from 10-30% at the bottom and decreasing to trace amounts above 107 cmbsf. Dolomite is again the most abundant carbonate, but calcite is also present at 107 cmbsf and below. Feldspar content varies, but it is generally present in trace amounts, except at 3 cmbsf, where it composes almost 20% of the sample.

PC06 exhibits the primary lithology, with sediment consisting of generally more than 60% clay. At 44 cmbsf, clay content decreases slightly and quartz, carbonates, and other trace minerals become relatively more abundant. Calcite is not identified in this core, and dolomite is only present as a barely-detectable trace at 44 cmbsf. Other carbonates, potentially iron- or manganese-rich, are present in very trace amounts at 44 cmbsf and below, though additional analyses are needed to confirm the chemistry. The “other traces” at 165 cmbsf include possible traces of pyrite.

PC07 is a short core. Similar to previous cores, clay content is approximately 60%, quartz content is between 25-40%, and feldspar is roughly 5%. Carbonates are present in trace amounts throughout the core, with calcite and dolomite identified above 48cmbsf. Other trace carbonates were identified at depth in the core, but chemistries should be confirmed with chemical analyses. Pyrite is a possible trace mineral at 111 cmbsf.

The primary lithology is dominant in PC08, except at 74 cmbsf and 79 cmbsf. Here the sample is 50-60% quartz and roughly 20% carbonate, with clay present only in minor to trace amounts. Both calcite and dolomite are present.

PC09 is slightly more quartz-rich than other cores, with clay content on average less than 50% and quartz 30-40%. Carbonates are present in trace amounts throughout the core.

PC10 is composed of the primary lithology. Carbonates are likely present in trace amounts throughout the core, though dolomite is only specifically identified between 137 cmbsf and 283 cmbsf.

The primary lithology dominates in PC11 except at the top of the core (6 cmbsf). Throughout the core, clay composes roughly 40-50% of the sediment, quartz 30-40%, feldspar 20-30%, and dolomite is present in trace amounts. At 6 cmbsf, quartz composes approximately 50% of the sample, and the clay content decreases to roughly 25%. Feldspar content increases, and no carbonate is identified.

The primary lithology dominates in PC12 except at the bottom of the core (594 cmbsf), where quartz and clay quantities decrease slightly and feldspar and trace minerals become more abundant. Dolomite is identified throughout the core and calcite is identified at 29 cmbsf, 450 cmbsf, and 594 cmbsf. The “other traces” in this core, particularly at 231 cmbsf and 594 cmbsf, includes possible traces of pyrite.

PC13 is composed of the primary lithology. Carbonates are present throughout the core in trace amounts. Calcite is identified at 354 cmbsf. The “other traces” at 123 cmbsf include possible traces of pyrite.

PC14 is composed of the primary lithology. The samples at 424 cmbsf and 500 cmbsf show a decrease in clay and an increase in quartz, feldspar, and carbonate content. Dolomite is the only carbonate identified in this core, and it is present in trace amounts throughout, except at 227 cmbsf.

The vibra cores, like the piston cores, have significant amounts of clay and quartz. VC01, however, is carbonate-rich, with carbonate, primarily calcite, composing up to 30% of the core. The sample at 2 cmbsf has the highest quartz content and the lowest clay content, and it is the only sample in which dolomite is more abundant than calcite. Feldspar is present only in trace amounts.

VC02 contains 30-40% clay and 40-50% quartz. Dolomite is present throughout the core in trace amounts, and smaller amounts of calcite are identified at 41 cmbsf and above and at 111 cmbsf.

VC03 contains 30-50% clay and 30-45% quartz. Carbonates, including both calcite and dolomite, compose approximately 10% of the core. At 58 cmbsf, dolomite increases and the total carbonate almost doubles while the clay content decreases. Clay content is at a maximum at the base of the core, where quartz is at a minimum.

3.5 GRAIN SIZE ANALYSES

Grain size data from 156 samples from all core recoveries were measured using a Malvern Mastersizer 2000 with a Hydro-G dispersion unit. These measurements are summarized in Tables 4 and 5. The output files contain three measurements for each sample and a tabulated average of those three measurements per Malvern’s protocol and instrument software. In addition, grain size distributions for each sample, from each core, are plotted on each individual VCD (Appendix 2).

Table 4 MITAS-2009 Snapshot of volume weighted mean grain size and grain size distribution values at 10% (d(0.1), 50% (d0.5) and 90% (d0.9)

Sample Name	d (0.1)	d (0.5)	d (0.9)	D [4, 3] - Volume weighted mean	Result Below 10.000 µm
PC02 sed24 s7 15-17cmBSF	2.153	6.289	22.868	25.279	68.978
PC02 sed24 s7 15-17cmBSF	2.149	6.248	22.135	20.055	69.377
PC02 sed24 s7 15-17cmBSF	2.15	6.254	22.409	21.732	69.301
PC02 sed24 s7 15-17cmBSF - Average	2.151	6.263	22.465	22.355	69.219
PC02 sed25 s7 65-67cmBSF	2.004	5.871	21.569	15.835	71.096
PC02 sed25 s7 65-67cmBSF	2.007	5.891	21.989	16.792	70.891
PC02 sed25 s7 65-67cmBSF	2.004	5.857	21.341	15.765	71.257
PC02 sed25 s7 65-67cmBSF - Average	2.005	5.873	21.629	16.131	71.081
PC02 sed26 s6 103-105cmBSF	2.016	5.999	22.61	18.743	70.035
PC02 sed26 s6 103-105cmBSF	2.017	5.996	22.576	18.643	70.085
PC02 sed26 s6 103-105cmBSF	2.031	6.103	25.062	38.788	69.042
PC02 sed26 s6 103-105cmBSF - Average	2.021	6.032	23.335	25.391	69.721
PC02 sed27 s6 155-157cmBSF	1.998	5.866	19.973	9.273	71.377
PC02 sed27 s6 155-157cmBSF	1.996	5.851	19.814	9.205	71.545
PC02 sed27 s6 155-157cmBSF	1.996	5.843	19.782	9.2	71.606
PC02 sed27 s6 155-157cmBSF - Average	1.997	5.853	19.857	9.226	71.509
PC02 sed28 s5 195-197cmBSF	2.132	7.155	664.921	135.444	61.338
PC02 sed28 s5 195-197cmBSF	2.303	9.255	1288.741	310.722	52.101
PC02 sed28 s5 195-197cmBSF	2.374	10.381	1358.811	371.142	49.077
PC02 sed28 s5 195-197cmBSF - Average	2.26	8.648	1250.24	272.436	54.172
PC02 sed29 s5 225-227cmBSF	2.011	6.17	22.766	15.655	68.819
PC02 sed29 s5 225-227cmBSF	2.011	6.173	22.942	16.894	68.778
PC02 sed29 s5 225-227cmBSF	2.04	6.422	28.826	49.669	66.609
PC02 sed29 s5 225-227cmBSF - Average	2.02	6.252	24.422	27.406	68.068

Table 5 MITAS-2009 Snapshot of sand silt clay grain size percentages

Core	Sample #	Section	Depth (cmbsf)	Measurement	d (0.1)	d (0.5)	d (0.9)	D [3, 2] - Surface weighted mean	Result 0.01µm-3.90µm	Result 3.90µm-63.00µm	Result 63.00µm-2000.00µm	Result 2000.00µm-10000.00µm
PC02	sed24	s7	15-17cmBSF	Average	2.151	6.263	22.465	4.631	29.523	67.293	3.184	0
PC02	sed24	s7	15-17cmBSF		2.153	6.289	22.868	4.644	29.425	67.188	3.387	0
PC02	sed24	s7	15-17cmBSF		2.149	6.248	22.135	4.621	29.587	67.46	2.952	0
PC02	sed24	s7	15-17cmBSF		2.15	6.254	22.409	4.627	29.557	67.229	3.213	0
PC02	sed25	s7	65-67cmBSF	Average	2.005	5.873	21.629	4.326	32.383	65.099	2.518	0
PC02	sed25	s7	65-67cmBSF		2.004	5.871	21.569	4.323	32.398	65.205	2.397	0
PC02	sed25	s7	65-67cmBSF		2.007	5.891	21.989	4.337	32.297	64.938	2.765	0
PC02	sed25	s7	65-67cmBSF		2.004	5.857	21.341	4.318	32.454	65.154	2.392	0
PC02	sed26	s6	103-105cmBSF	Average	2.021	6.032	23.335	4.403	31.638	64.904	3.458	0
PC02	sed26	s6	103-105cmBSF		2.016	5.999	22.61	4.381	31.794	65.245	2.961	0
PC02	sed26	s6	103-105cmBSF		2.017	5.996	22.576	4.381	31.798	65.253	2.949	0
PC02	sed26	s6	103-105cmBSF		2.031	6.103	25.062	4.449	31.322	64.215	4.463	0
PC02	sed27	s6	155-157cmBSF	Average	1.997	5.853	19.857	4.288	32.514	66.882	0.604	0
PC02	sed27	s6	155-157cmBSF		1.998	5.866	19.973	4.294	32.455	66.913	0.632	0
PC02	sed27	s6	155-157cmBSF		1.996	5.851	19.814	4.286	32.527	66.888	0.585	0
PC02	sed27	s6	155-157cmBSF		1.996	5.843	19.782	4.284	32.56	66.844	0.596	0
PC02	sed28	s5	195-197cmBSF	Average	2.26	8.648	1250.24	5.622	24.473	52.691	22.836	0
PC02	sed28	s5	195-197cmBSF		2.132	7.155	664.921	4.965	27.712	59.864	12.424	0
PC02	sed28	s5	195-197cmBSF		2.303	9.255	1288.741	5.844	23.541	50.62	25.838	0
PC02	sed28	s5	195-197cmBSF		2.374	10.381	1358.811	6.207	22.164	47.589	30.247	0
PC02	sed29	s5	225-227cmBSF	Average	2.02	6.252	24.422	4.456	30.792	65.671	3.537	0
PC02	sed29	s5	225-227cmBSF		2.011	6.17	22.766	4.407	31.131	66.537	2.332	0
PC02	sed29	s5	225-227cmBSF		2.011	6.173	22.942	4.41	31.118	66.327	2.555	0
PC02	sed29	s5	225-227cmBSF		2.04	6.422	28.826	4.554	30.126	64.149	5.725	0

None of the samples measured classified quantitatively as pure clay, grain size <3.9µm on Wentworth's classification (1922) (Figure 6). Of the samples measured, 147 samples were from silty-clay to silt dominated samples with grain sizes ranging from 3.9 to 62 µm (Table 4).

Millimeters (mm)		Micrometers (µm)	Phi (φ)	Wentworth size class		Rock type
	4096		-12.0	Boulder	Gravel	Conglomerate/ Breccia
	256		-8.0	Cobble		
	64		-6.0	Pebble		
	4		-2.0	Granule		
	2.00		-1.0	Very coarse sand	Sand	Sandstone
	1.00		0.0	Coarse sand		
1/2	0.50	500	1.0	Medium sand		
1/4	0.25	250	2.0	Fine sand		
1/8	0.125	125	3.0	Very fine sand		
1/16	0.0625	63	4.0	Coarse silt	Silt	Siltstone
1/32	0.031	31	5.0	Medium silt		
1/64	0.0156	15.6	6.0	Fine silt		
1/128	0.0078	7.8	7.0	Very fine silt		
1/256	0.0039	3.9	8.0	Clay	Mud	Claystone

Figure 6. Grain size divisions for sediments and rocks (adapted from Wentworth, 1922).

Seven samples were measured from beds with very fine to fine grained sands, with grain sizes ranging from 63 to 250 µm. These included, SED100 sample from 282 cmbsf from PC10 with a measured mean grain size of 125 µm, SED14 sample from 383 cmbsf from PC14 with a measured mean grain size of 125 µm, SED15 sample from 111 cmbsf from VC02 with a measured mean grain size of 129 µm, SED01 sample from 2 cmbsf from VC01 with a measured mean grain size of 134 µm, SED17 sample from 23 cmbsf from VC03 with a measured mean grain size of 179 µm, SED148 sample from 226 cmbsf from PC14 with a measured mean grain size of 233 µm, and SED62 sample from 350 cmbsf in PC04 had a measured mean grain size of 236 µm.

Two samples were measured from beds coarser than fine sands, SED28 sample from 195 cmbsf in PC02 had a measured mean grain size of 272 µm, and SED121 sample from 118 cmbsf in PC12 had a measured mean grain size of 467 µm. However, these samples were from distinct coarse grained beds, see VCD's in Appendix 2.

3.6 BROADER IMPLICATIONS FOR THESE DATA

Given the ongoing interest in modern processes and paleo-perspectives in the Arctic Ocean ecosystem, and the logistical difficulties in working and sampling in this environment, these initial data sets are presented for use in both follow-up studies by this research team and those of other researchers who are actively working in the Beaufort Shelf region or more broadly on Arctic Ocean marine science research questions.

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APPENDIX 1 MITAS-2009 SNAPSHOT OF CORE SECTION LOG

For the full spreadsheet workbook of the core section log, please see the original data file in EDX (Appendix 1).

Piston Cores

Barrel #	Section #	cm w/in barrel
III	9	0
	8	
	7	300
II	6	0
	5	
	4	300
I	3	0
	2	
	1	300

Vibra Cores

Barrel #	Section #	cm w/in barrel
I	5	0
	4	
	3	
	2	
	1	500

~1 meter long sections

Rough schematic, every core is a different length so total core length and section lengths will vary

Most cores follow this numbering scheme, however, in a few instances numbering deviated from this method and is noted via comments.

Date	Expedition	Core	Core length (cm)	Section #	Total cmBSF Top of Section (cm)	Total cmBSF Base of Section (cm)	Length of Section (cm)	Time Launched (UTC)	Latitude	Longitude	Water depth (m)	Time on Bottom (UTC)	Latitude	Longitude	Water depth (m)	Time on Deck (UTC)	Latitude	Longitude	Water depth (m)	Vibrate Time (min)	Ambient Temperature (C)
9/19/2009	MITAS PS2009-09	VC-01	76.5	1	0	52	52	4:01:12	70° 15.34420' N	146° 04.70410' W	22	4:26:13	70° 15.34210' N	146° 04.69180' W	22	4:42:48	70° 15.34170' N	146° 04.69300' W	22	6	not recorded
9/19/2009	MITAS PS2009-09	VC-01	76.5	cc	52	76.5	24.5	4:01:12	70° 15.34420' N	146° 04.70410' W	22	4:26:13	70° 15.34210' N	146° 04.69180' W	22	4:42:48	70° 15.34170' N	146° 04.69300' W	22	6	not recorded

Date	Expedition	Core	Core length (cm)	Section #	Total cmBSF Top of Section (cm)	Total cmBSF Base of Section (cm)	Length of Section (cm)	Time Launched (UTC)	Latitude	Longitude	Water depth (m)	Time on Bottom (UTC)	Latitude	Longitude	Water depth (m)	Time on Deck (UTC)	Latitude	Longitude	Water depth (m)	Vibrate Time (min)	Ambient Temperature (C)
9/19/2009	MITAS PS2009-09	VC-02	134	1	0	100	100	18:11:21	70° 21.65110' N	146° 00.46200' W	34.5	-	70° 21.6448' N	146° 00.4635' W	35.2	4:42:48	70° 21.64640' N	146° 00.46210' W		0	0.5
9/19/2009	MITAS PS2009-09	VC-02	134	2	100	113	13	18:11:21	70° 21.65110' N	146° 00.46200' W	34.5	-	70° 21.6448' N	146° 00.4635' W	35.2	4:42:48	70° 21.64640' N	146° 00.46210' W		0	0.5
9/19/2009	MITAS PS2009-09	VC-02	134	cc	113	134	21	18:11:21	70° 21.65110' N	146° 00.46200' W	34.5	-	70° 21.6448' N	146° 00.4635' W	35.2	4:42:48	70° 21.64640' N	146° 00.46210' W		0	0.5

Date	Expedition	Core	Core length (cm)	Section #	Total cmBSF Top of Section (cm)	Total cmBSF Base of Section (cm)	Length of Section (cm)	Time Launched (UTC)	Latitude	Longitude	Water depth (m)	Time on Bottom (UTC)	Latitude	Longitude	Water depth (m)	Time on Deck (UTC)	Latitude	Longitude	Water depth (m)	Vibrate Time (min)	Ambient Temperature (C)
9/19/2009	MITAS PS2009-09	VC-03	293	1	0	100	100	4:01:12	70° 15.34420' N	146° 04.70410' W	22	4:26:13	70° 15.34210' N	146° 04.69180' W	22	4:42:48	70° 15.34170' N	146° 04.69300' W	22	6	not recorded
9/19/2009	MITAS PS2009-09	VC-03	293	2	100	200	100	4:01:12	70° 15.34420' N	146° 04.70410' W	22	4:26:13	70° 15.34210' N	146° 04.69180' W	22	4:42:48	70° 15.34170' N	146° 04.69300' W	22	6	not recorded
9/19/2009	MITAS PS2009-09	VC-03	293	3	200	271	71	4:01:12	70° 15.34420' N	146° 04.70410' W	22	4:26:13	70° 15.34210' N	146° 04.69180' W	22	4:42:48	70° 15.34170' N	146° 04.69300' W	22	6	not recorded
9/19/2009	MITAS PS2009-09	VC-03	293	cc	271	293	22	4:01:12	70° 15.34420' N	146° 04.70410' W	22	4:26:13	70° 15.34210' N	146° 04.69180' W	22	4:42:48	70° 15.34170' N	146° 04.69300' W	22	6	not recorded

Date	Expedition	Core	Core length (cm)	Section #	Total cmBSF Top of Section (cm)	Total cmBSF Base of Section (cm)	Length of Section (cm)	Time on Bottom (UTC)	Latitude	Longitude	Water depth (m)	Time on Deck (UTC)	Latitude	Longitude	Water depth (m)	Pullout tension (psi)	Trigger Line Length (ft)	Ambient Temperature (C)
9/17/2009	MITAS PS2009-09	PC-01	0	n/a	0	0	0	22:43:21	70° 21.67070' N	146° 00.26620' W	33	23:16:49	70° 21.67220' N	146° 00.27380' W	33	-	10	-

Date	Expedition	Core	Core length (cm)	Section #	Total cmBSF Top of Section (cm)	Total cmBSF Base of Section (cm)	Length of Section (cm)	Time on Bottom (UTC)	Latitude	Longitude	Water depth (m)	Time on Deck (UTC)	Latitude	Longitude	Water depth (m)	Pullout tension (psi)	Trigger Line Length (ft)	Ambient Temperature (C)
9/20/2009	MITAS PS2009-09	PC-02	686	7	0	75	75	19:09:16	71° 00.22810' N	145° 27.03660' W	566	19:24:50	71° 00.14130' N	145° 27.37430' W	548	8800	10 ft	-3.7
9/20/2009	MITAS PS2009-09	PC-02	686	6	75	175	100	19:09:16	71° 00.22810' N	145° 27.03660' W	566	19:24:50	71° 00.14130' N	145° 27.37430' W	548	8800	10 ft	-3.7
9/20/2009	MITAS PS2009-09	PC-02	686	5	175	275	100	19:09:16	71° 00.22810' N	145° 27.03660' W	566	19:24:50	71° 00.14130' N	145° 27.37430' W	548	8800	10 ft	-3.7
9/20/2009	MITAS PS2009-09	PC-02	686	4	275	381	106	19:09:16	71° 00.22810' N	145° 27.03660' W	566	19:24:50	71° 00.14130' N	145° 27.37430' W	548	8800	10 ft	-3.7
9/20/2009	MITAS PS2009-09	PC-02	686	3	381	481	100	19:09:16	71° 00.22810' N	145° 27.03660' W	566	19:24:50	71° 00.14130' N	145° 27.37430' W	548	8800	10 ft	-3.7
9/20/2009	MITAS PS2009-09	PC-02	686	2	481	581	100	19:09:16	71° 00.22810' N	145° 27.03660' W	566	19:24:50	71° 00.14130' N	145° 27.37430' W	548	8800	10 ft	-3.7
9/20/2009	MITAS PS2009-09	PC-02	686	1	581	681	100	19:09:16	71° 00.22810' N	145° 27.03660' W	566	19:24:50	71° 00.14130' N	145° 27.37430' W	548	8800	10 ft	-3.7
9/20/2009	MITAS PS2009-09	PC-02	686	cc	681	686	5	19:09:16	71° 00.22810' N	145° 27.03660' W	566	19:24:50	71° 00.14130' N	145° 27.37430' W	548	8800	10 ft	-3.7

Date	Expedition	Core	Core length (cm)	Section #	Total cmBSF Top of Section (cm)	Total cmBSF Base of Section (cm)	Length of Section (cm)	Time on Bottom (UTC)	Latitude	Longitude	Water depth (m)	Time on Deck (UTC)	Latitude	Longitude	Water depth (m)	Pullout tension (psi)	Trigger Line Length (ft)	Ambient Temperature (C)
9/20/2009	MITAS PS2009-09	PC-03	713	7	0	90	90	23:07:59	70° 58.47840' N	145° 29.21420' W	490	23:19:32	70° 58.41740' N	145° 29.73750' W	476	9000	10 ft	-3.1
9/20/2009	MITAS PS2009-09	PC-03	713	6	90	190	100	23:07:59	70° 58.47840' N	145° 29.21420' W	490	23:19:32	70° 58.41740' N	145° 29.73750' W	476	9000	10 ft	-3.1
9/20/2009	MITAS PS2009-09	PC-03	713	5	190	290	100	23:07:59	70° 58.47840' N	145° 29.21420' W	490	23:19:32	70° 58.41740' N	145° 29.73750' W	476	9000	10 ft	-3.1
9/20/2009	MITAS PS2009-09	PC-03	713	4	290	395	105	23:07:59	70° 58.47840' N	145° 29.21420' W	490	23:19:32	70° 58.41740' N	145° 29.73750' W	476	9000	10 ft	-3.1
9/20/2009	MITAS PS2009-09	PC-03	713	3	395	495	100	23:07:59	70° 58.47840' N	145° 29.21420' W	490	23:19:32	70° 58.41740' N	145° 29.73750' W	476	9000	10 ft	-3.1
9/20/2009	MITAS PS2009-09	PC-03	713	2	495	595	100	23:07:59	70° 58.47840' N	145° 29.21420' W	490	23:19:32	70° 58.41740' N	145° 29.73750' W	476	9000	10 ft	-3.1
9/20/2009	MITAS PS2009-09	PC-03	713	1	595	693	98	23:07:59	70° 58.47840' N	145° 29.21420' W	490	23:19:32	70° 58.41740' N	145° 29.73750' W	476	9000	10 ft	-3.1
9/20/2009	MITAS PS2009-09	PC-03	713	cc	693	713	20	23:07:59	70° 58.47840' N	145° 29.21420' W	490	23:19:32	70° 58.41740' N	145° 29.73750' W	476	9000	10 ft	-3.1

Date	Expedition	Core	Core length (cm)	Section #	Total cmBSF Top of Section (cm)	Total cmBSF Base of Section (cm)	Length of Section (cm)	Time on Bottom (UTC)	Latitude	Longitude	Water depth (m)	Time on Deck (UTC)	Latitude	Longitude	Water depth (m)	Pullout tension (psi)	Trigger Line Length (ft)	Ambient Temperature (C)
9/21/2009	MITAS PS2009-09	PC-04	387	4	0	84	84	4:27:32	71° 11.98460' N	145° 14.95110' W	2077	5:11:43	71° 11.95900' N	145° 16.18000' W	2080	8800	10	-4.8
9/21/2009	MITAS PS2009-09	PC-04	387	3	84	184	100	4:27:32	71° 11.98460' N	145° 14.95110' W	2077	5:11:43	71° 11.95900' N	145° 16.18000' W	2080	8800	10	-4.8
9/21/2009	MITAS PS2009-09	PC-04	387	2	184	284	100	4:27:32	71° 11.98460' N	145° 14.95110' W	2077	5:11:43	71° 11.95900' N	145° 16.18000' W	2080	8800	10	-4.8
9/21/2009	MITAS PS2009-09	PC-04	387	1	284	382	98	4:27:32	71° 11.98460' N	145° 14.95110' W	2077	5:11:43	71° 11.95900' N	145° 16.18000' W	2080	8800	10	-4.8
9/21/2009	MITAS PS2009-09	PC-04	387	cc	382	387	5	4:27:32	71° 11.98460' N	145° 14.95110' W	2077	5:11:43	71° 11.95900' N	145° 16.18000' W	2080	8800	10	-4.8

Date	Expedition	Core	Core length (cm)	Section #	Total cmBSF Top of Section (cm)	Total cmBSF Base of Section (cm)	Length of Section (cm)	Time on Bottom (UTC)	Latitude	Longitude	Water depth (m)	Time on Deck (UTC)	Latitude	Longitude	Water depth (m)	Pullout tension (psi)	Trigger Line Length (ft)	Ambient Temperature (C)
9/21/2009	MITAS PS2009-09	PC-05	0	n/a	0	0	0	17:16:32	46.85550' N	145° 39.56980' W	77				10		10	not taken

Date	Expedition	Core	Core length (cm)	Section #	Total cmBSF Top of Section (cm)	Total cmBSF Base of Section (cm)	Length of Section (cm)	Time on Bottom (UTC)	Latitude	Longitude	Water depth (m)	Time on Deck (UTC)	Latitude	Longitude	Water depth (m)	Pullout tension (psi)	Trigger Line Length (ft)	Ambient Temperature (C)
9/22/2009	MITAS PS2009-09	PC-06	324	5	0	25	25	19:26:22	71° 23.53660' N	148° 21.52630' W	2208	20:01:09	71° 23.38590' N	148° 20.96280' W	2255	13200	10	-4.5
9/22/2009	MITAS PS2009-09	PC-06	324	4	25	46	21	19:26:22	71° 23.53660' N	148° 21.52630' W	2208	20:01:09	71° 23.38590' N	148° 20.96280' W	2255	13200	10	-4.5
9/22/2009	MITAS PS2009-09	PC-06	324	3	46	146	100	19:26:22	71° 23.53660' N	148° 21.52630' W	2208	20:01:09	71° 23.38590' N	148° 20.96280' W	2255	13200	10	-4.5
9/22/2009	MITAS PS2009-09	PC-06	324	2	146	246	100	19:26:22	71° 23.53660' N	148° 21.52630' W	2208	20:01:09	71° 23.38590' N	148° 20.96280' W	2255	13200	10	-4.5
9/22/2009	MITAS PS2009-09	PC-06	324	1	246	310	64	19:26:22	71° 23.53660' N	148° 21.52630' W	2208	20:01:09	71° 23.38590' N	148° 20.96280' W	2255	13200	10	-4.5
9/22/2009	MITAS PS2009-09	PC-06	324	cc	310	324	14	19:26:22	71° 23.53660' N	148° 21.52630' W	2208	20:01:09	71° 23.38590' N	148° 20.96280' W	2255	13200	10	-4.5

Date	Expedition	Core	Core length (cm)	Section #	Total cmBSF Top of Section (cm)	Total cmBSF Base of Section (cm)	Length of Section (cm)	Time on Bottom (UTC)	Latitude	Longitude	Water depth (m)	Time on Deck (UTC)	Latitude	Longitude	Water depth (m)	Pullout tension (psi)	Trigger Line Length (ft)	Ambient Temperature (C)
9/22/2009	MITAS PS2009-09	PC-07	164	2	0	100	100	22:59:20	71° 15.32580' N	148° 36.93170' W	985	not captured	not captured	not captured	not captured	9000	10	3.3
9/22/2009	MITAS PS2009-09	PC-07	164	1	100	152	52	22:59:20	71° 15.32580' N	148° 36.93170' W	985	not captured	not captured	not captured	not captured	9000	10	3.3
9/22/2009	MITAS PS2009-09	PC-07	164	cc	152	164	12	22:59:20	71° 15.32580' N	148° 36.93170' W	985	not captured	not captured	not captured	not captured	9000	10	3.3

Date	Expedition	Core	Core length (cm)	Section #	Total cmBSF Top of Section (cm)	Total cmBSF Base of Section (cm)	Length of Section (cm)	Time on Bottom (UTC)	Latitude	Longitude	Water depth (m)	Time on Deck (UTC)	Latitude	Longitude	Water depth (m)	Pullout tension (psi)	Trigger Line Length (ft)	Ambient Temperature (C)
9/23/2009	MITAS PS2009-09	PC-08	239	3	0	100	100	2:56:27	71° 12.44330' N	149° 13.46600' W	144.5	3:20:30	71° 12.41820' N	149° 13.61830' W	136.8	not captured	10	4.0
9/23/2009	MITAS PS2009-09	PC-08	239	2	100	200	100	2:56:27	71° 12.44330' N	149° 13.46600' W	144.5	3:20:30	71° 12.41820' N	149° 13.61830' W	136.8	not captured	10	4.0
9/23/2009	MITAS PS2009-09	PC-08	239	1	200	227	27	2:56:27	71° 12.44330' N	149° 13.46600' W	144.5	3:20:30	71° 12.41820' N	149° 13.61830' W	136.8	not captured	10	4.0
9/23/2009	MITAS PS2009-09	PC-08	239	cc	227	239	12	2:56:27	71° 12.44330' N	149° 13.46600' W	144.5	3:20:30	71° 12.41820' N	149° 13.61830' W	136.8	not captured	10	4.0

Date	Expedition	Core	Core length (cm)	Section #	Total cmBSF Top of Section (cm)	Total cmBSF Base of Section (cm)	Length of Section (cm)	Time on Bottom (UTC)	Latitude	Longitude	Water depth (m)	Time on Deck (UTC)	Latitude	Longitude	Water depth (m)	Pullout tension (psi)	Trigger Line Length (ft)	Ambient Temperature (C)
9/23/2009	MITAS PS2009-09	PC-09	417	5	0	50	50	5:53:01	71° 13.14430' N	149° 13.23340' W	306	6:05:33	71° 13.11590' N	149° 13.28200' W	299	4000	10	3.5
9/23/2009	MITAS PS2009-09	PC-09	417	4	50	112	62	5:53:01	71° 13.14430' N	149° 13.23340' W	306	6:05:33	71° 13.11590' N	149° 13.28200' W	299	4000	10	3.5
9/23/2009	MITAS PS2009-09	PC-09	417	3	112	212	100	5:53:01	71° 13.14430' N	149° 13.23340' W	306	6:05:33	71° 13.11590' N	149° 13.28200' W	299	4000	10	3.5
9/23/2009	MITAS PS2009-09	PC-09	417	2	212	312	100	5:53:01	71° 13.14430' N	149° 13.23340' W	306	6:05:33	71° 13.11590' N	149° 13.28200' W	299	4000	10	3.5
9/23/2009	MITAS PS2009-09	PC-09	417	1	312	404	92	5:53:01	71° 13.14430' N	149° 13.23340' W	306	6:05:33	71° 13.11590' N	149° 13.28200' W	299	4000	10	3.5
9/23/2009	MITAS PS2009-09	PC-09	417	cc	404	417	13	5:53:01	71° 13.14430' N	149° 13.23340' W	306	6:05:33	71° 13.11590' N	149° 13.28200' W	299	4000	10	3.5

Date	Expedition	Core	Core length (cm)	Section #	Total cmBSF Top of Section (cm)	Total cmBSF Base of Section (cm)	Length of Section (cm)	Time on Bottom (UTC)	Latitude	Longitude	Water depth (m)	Time on Deck (UTC)	Latitude	Longitude	Water depth (m)	Pullout tension (psi)	Trigger Line Length (ft)	Ambient Temperature (C)
9/24/2009	MITAS PS2009-09	PC-10	595	6	0	100	100	20:15:35	71° 52.04010' N	151° 46.91160' W	1957	20:54:38	71° 51.89640' N	151° 46.74810' W	1999	9700	10	2.6
9/24/2009	MITAS PS2009-09	PC-10	595	5	100	200	100	20:15:35	71° 52.04010' N	151° 46.91160' W	1957	20:54:38	71° 51.89640' N	151° 46.74810' W	1999	9700	10	2.6
9/24/2009	MITAS PS2009-09	PC-10	595	4	200	288	88	20:15:35	71° 52.04010' N	151° 46.91160' W	1957	20:54:38	71° 51.89640' N	151° 46.74810' W	1999	9700	10	2.6
9/24/2009	MITAS PS2009-09	PC-10	595	3	288	388	100	20:15:35	71° 52.04010' N	151° 46.91160' W	1957	20:54:38	71° 51.89640' N	151° 46.74810' W	1999	9700	10	2.6
9/24/2009	MITAS PS2009-09	PC-10	595	2	388	488	100	20:15:35	71° 52.04010' N	151° 46.91160' W	1957	20:54:38	71° 51.89640' N	151° 46.74810' W	1999	9700	10	2.6
9/24/2009	MITAS PS2009-09	PC-10	595	1	488	581	93	20:15:35	71° 52.04010' N	151° 46.91160' W	1957	20:54:38	71° 51.89640' N	151° 46.74810' W	1999	9700	10	2.6
9/24/2009	MITAS PS2009-09	PC-10	595	cc	581	595	14	20:15:35	71° 52.04010' N	151° 46.91160' W	1957	20:54:38	71° 51.89640' N	151° 46.74810' W	1999	9700	10	2.6

Date	Expedition	Core	Core length (cm)	Section #	Total cmBSF Top of Section (cm)	Total cmBSF Base of Section (cm)	Length of Section (cm)	Time on Bottom (UTC)	Latitude	Longitude	Water depth (m)	Time on Deck (UTC)	Latitude	Longitude	Water depth (m)	Pullout tension (psi)	Trigger Line Length (ft)	Ambient Temperature (C)
9/25/2009	MITAS PS2009-09	PC-11	574	6	0	100	100	1:32:26	71° 46.68280' N	151° 52.70670' W	1458	1:55:30	71° 46.72610' N	151° 53.10610' W	1430	5900	10	not captured
9/25/2009	MITAS PS2009-09	PC-11	574	5	100	200	100	1:32:26	71° 46.68280' N	151° 52.70670' W	1458	1:55:30	71° 46.72610' N	151° 53.10610' W	1430	5900	10	not captured
9/25/2009	MITAS PS2009-09	PC-11	574	4	200	266	66	1:32:26	71° 46.68280' N	151° 52.70670' W	1458	1:55:30	71° 46.72610' N	151° 53.10610' W	1430	5900	10	not captured
9/25/2009	MITAS PS2009-09	PC-11	574	3	266	366	100	1:32:26	71° 46.68280' N	151° 52.70670' W	1458	1:55:30	71° 46.72610' N	151° 53.10610' W	1430	5900	10	not captured
9/25/2009	MITAS PS2009-09	PC-11	574	2	366	466	100	1:32:26	71° 46.68280' N	151° 52.70670' W	1458	1:55:30	71° 46.72610' N	151° 53.10610' W	1430	5900	10	not captured
9/25/2009	MITAS PS2009-09	PC-11	574	1	466	560	94	1:32:26	71° 46.68280' N	151° 52.70670' W	1458	1:55:30	71° 46.72610' N	151° 53.10610' W	1430	5900	10	not captured
9/25/2009	MITAS PS2009-09	PC-11	574	cc	560	574	14	1:32:26	71° 46.68280' N	151° 52.70670' W	1458	1:55:30	71° 46.72610' N	151° 53.10610' W	1430	5900	10	not captured

Date	Expedition	Core	Core length (cm)	Section #	Total cmBSF Top of Section (cm)	Total cmBSF Base of Section (cm)	Length of Section (cm)	Time on Bottom (UTC)	Latitude	Longitude	Water depth (m)	Time on Deck (UTC)	Latitude	Longitude	Water depth (m)	Pullout tension (psi)	Trigger Line Length (ft)	Ambient Temperature (C)
9/25/2009	MITAS PS2009-09	PC-12	598	6	0	100	100	4:55:52	71° 32.97120' N	152° 03.68110' W	342	not captured	not captured	not captured	not captured	not captured	10	not captured
9/25/2009	MITAS PS2009-09	PC-12	598	5	100	200	100	4:55:52	71° 32.97120' N	152° 03.68110' W	342	not captured	not captured	not captured	not captured	not captured	10	not captured
9/25/2009	MITAS PS2009-09	PC-12	598	4	200	295	95	5:55:52	71° 32.97120' N	152° 03.68110' W	342	not captured	not captured	not captured	not captured	not captured	10	not captured
9/25/2009	MITAS PS2009-09	PC-12	598	3	295	395	100	4:55:52	71° 32.97120' N	152° 03.68110' W	342	not captured	not captured	not captured	not captured	not captured	10	not captured
9/25/2009	MITAS PS2009-09	PC-12	598	2	395	495	100	4:55:52	71° 32.97120' N	152° 03.68110' W	342	not captured	not captured	not captured	not captured	not captured	10	not captured
9/25/2009	MITAS PS2009-09	PC-12	598	1	495	598	103	4:55:52	71° 32.97120' N	152° 03.68110' W	342	not captured	not captured	not captured	not captured	not captured	10	not captured
9/25/2009	MITAS PS2009-09	PC-12	598	cc	598	598	0	4:55:52	71° 32.97120' N	152° 03.68110' W	342	not captured	not captured	not captured	not captured	not captured	10	not captured

Date	Expedition	Core	Core length (cm)	Section #	Total cmBSF Top of Section (cm)	Total cmBSF Base of Section (cm)	Length of Section (cm)	Time on Bottom (UTC)	Latitude	Longitude	Water depth (m)	Time on Deck (UTC)	Latitude	Longitude	Water depth (m)	Pullout tension (psi)	Trigger Line Length (ft)	Ambient Temperature (C)
9/25/2009	MITAS PS2009-09	PC-13	602	7	0	100	100	6:28:56	71° 31.86300' N	152° 04.75420' W	280	not captured	not captured	not captured	not captured	6500	10	not captured
9/25/2009	MITAS PS2009-09	PC-13	602	6	100	200	100	6:28:56	71° 31.86300' N	152° 04.75420' W	280	not captured	not captured	not captured	not captured	6500	10	not captured
9/25/2009	MITAS PS2009-09	PC-13	602	5	200	296	96	6:28:56	71° 31.86300' N	152° 04.75420' W	280	not captured	not captured	not captured	not captured	6500	10	not captured
9/25/2009	MITAS PS2009-09	PC-13	602	4	296	396	100	6:28:56	71° 31.86300' N	152° 04.75420' W	280	not captured	not captured	not captured	not captured	6500	10	not captured
9/25/2009	MITAS PS2009-09	PC-13	602	3	396	496	100	6:28:56	71° 31.86300' N	152° 04.75420' W	280	not captured	not captured	not captured	not captured	6500	10	not captured
9/25/2009	MITAS PS2009-09	PC-13	602	2	496	556	60	6:28:56	71° 31.86300' N	152° 04.75420' W	280	not captured	not captured	not captured	not captured	6500	10	not captured
9/25/2009	MITAS PS2009-09	PC-13	602	1	556	591	35	6:28:56	71° 31.86300' N	152° 04.75420' W	280	not captured	not captured	not captured	not captured	6500	10	not captured
9/25/2009	MITAS PS2009-09	PC-13	602	cc	591	602	11	6:28:56	71° 31.86300' N	152° 04.75420' W	280	not captured	not captured	not captured	not captured	6500	10	not captured

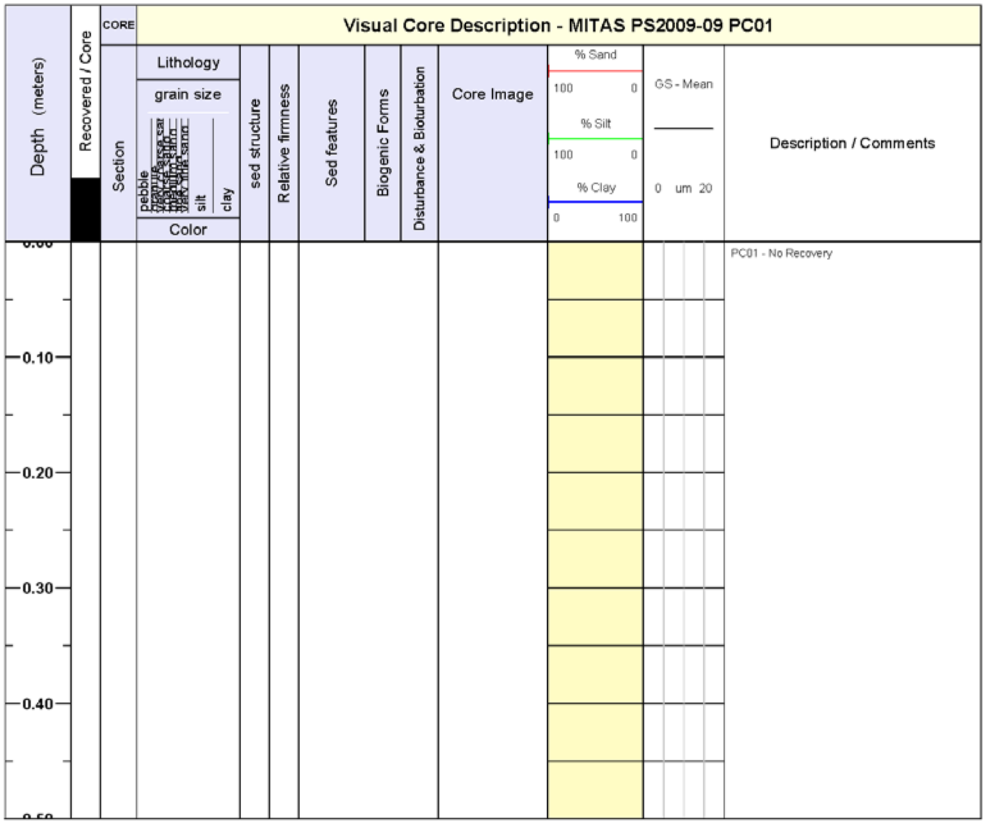
Date	Expedition	Core	Core length (cm)	Section #	Total cmBSF Top of Section (cm)	Total cmBSF Base of Section (cm)	Length of Section (cm)	Time on Bottom (UTC)	Latitude	Longitude	Water depth (m)	Time on Deck (UTC)	Latitude	Longitude	Water depth (m)	Pullout tension (psi)	Trigger Line Length (ft)	Ambient Temperature (C)
9/25/2009	MITAS PS2009-09	PC-14	645	7	0	38	38	not captured	not captured	not captured	not captured	17:27:32	71° 37.64200' N	151° 59.29430' W	1005	5800	10	2.6
9/25/2009	MITAS PS2009-09	PC-14	645	6	38	138	100	not captured	not captured	not captured	not captured	17:27:32	71° 37.64200' N	151° 59.29430' W	1005	5800	10	2.6
9/25/2009	MITAS PS2009-09	PC-14	645	5	138	243	105	not captured	not captured	not captured	not captured	18:27:32	71° 37.64200' N	151° 59.29430' W	1005	5800	10	2.6
9/25/2009	MITAS PS2009-09	PC-14	645	4	243	343	100	not captured	not captured	not captured	not captured	19:27:32	71° 37.64200' N	151° 59.29430' W	1005	5800	10	2.6
9/25/2009	MITAS PS2009-09	PC-14	645	3	343	443	100	not captured	not captured	not captured	not captured	20:27:32	71° 37.64200' N	151° 59.29430' W	1005	5800	10	2.6
9/25/2009	MITAS PS2009-09	PC-14	645	2	443	543	100	not captured	not captured	not captured	not captured	17:27:32	71° 37.64200' N	151° 59.29430' W	1005	5800	10	2.6
9/25/2009	MITAS PS2009-09	PC-14	645	1	543	633	90	not captured	not captured	not captured	not captured	17:27:32	71° 37.64200' N	151° 59.29430' W	1005	5800	10	2.6
9/25/2009	MITAS PS2009-09	PC-14	645	cc	633	645	12	not captured	not captured	not captured	not captured	17:27:32	71° 37.64200' N	151° 59.29430' W	1005	5800	10	2.6

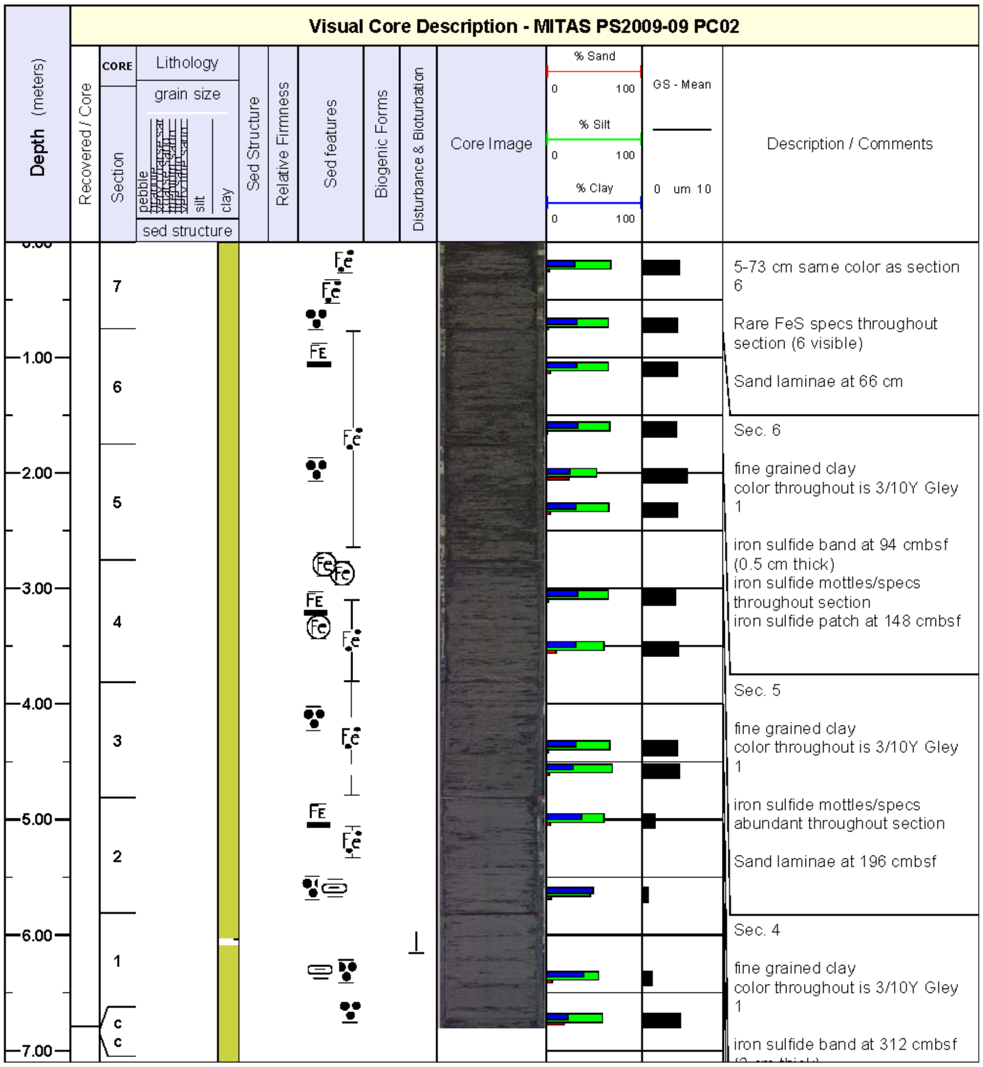
Date	Expedition	Core	Core length (cm)	Section #	Total cmBSF Top of Section (cm)	Total cmBSF Base of Section (cm)	Length of Section (cm)	Time on Bottom (UTC)	Latitude	Longitude	Water depth (m)	Time on Deck (UTC)	Latitude	Longitude	Water depth (m)	Pullout tension (psi)	Ambient Temperature (C)
9/21/2009	MITAS PS2009-09	GC-01	0	n/a	0	0	0										

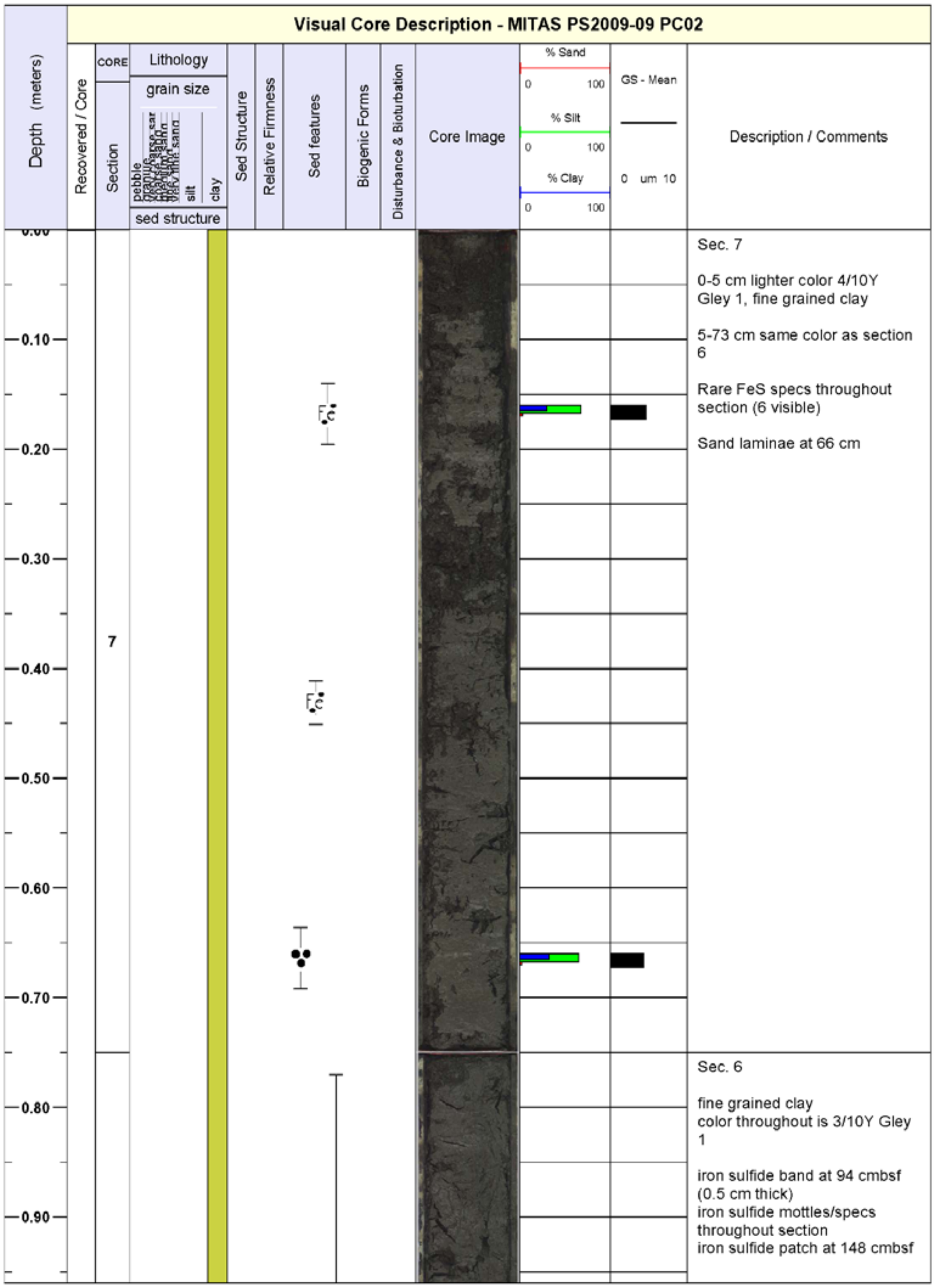
Date	Expedition	Core	Core length (cm)	Section #	Total cmBSF Top of Section (cm)	Total cmBSF Base of Section (cm)	Length of Section (cm)	Time on Bottom (UTC)	Latitude	Longitude	Water depth (m)	Time on Deck (UTC)	Latitude	Longitude	Water depth (m)	Pullout tension (psi)	Ambient Temperature (C)
9/21/2009	MITAS PS2009-09	GC-02	0	n/a	0	0	0										

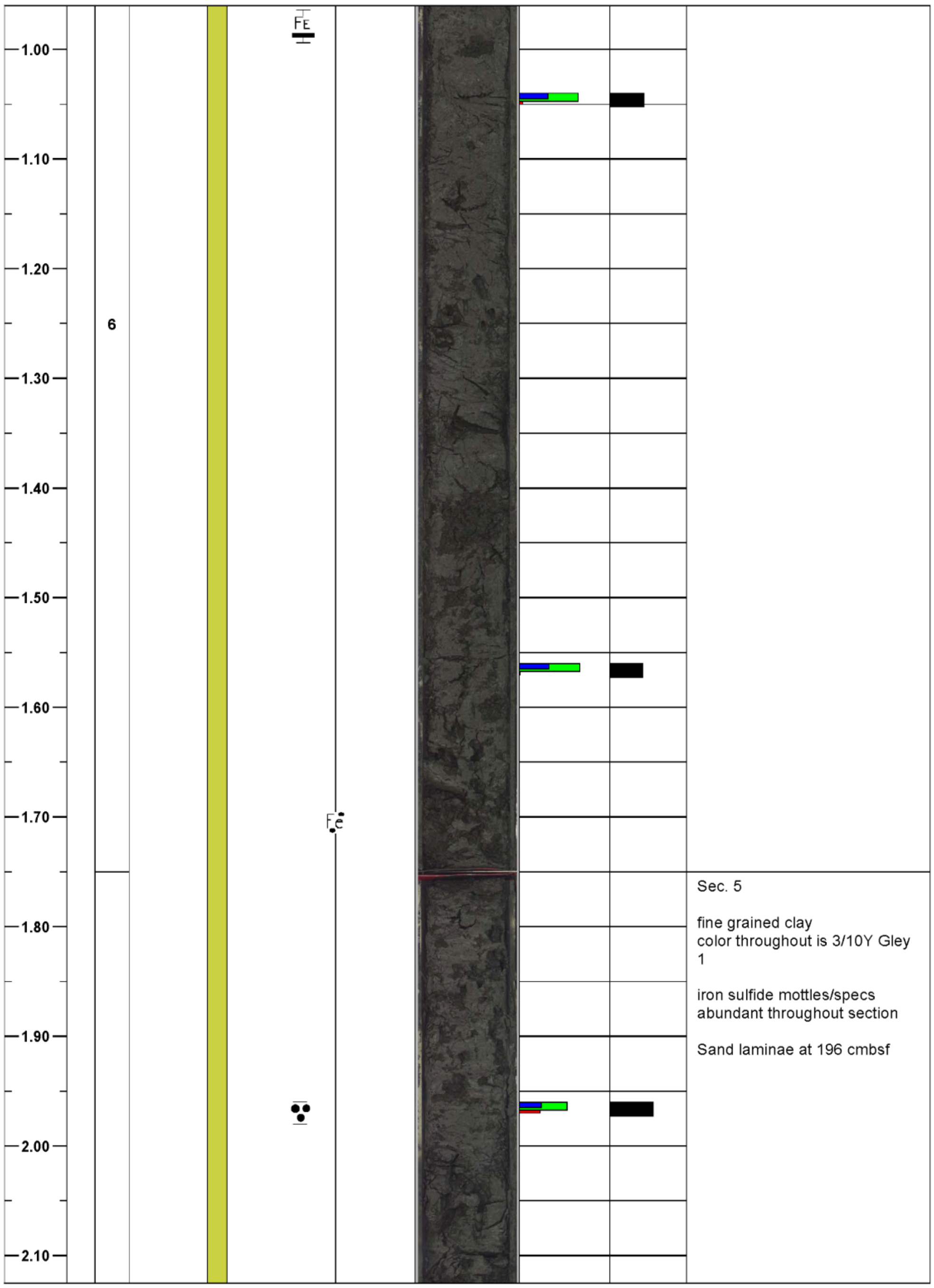
APPENDIX 2 MITAS-2009 VISUAL CORE DESCRIPTIONS

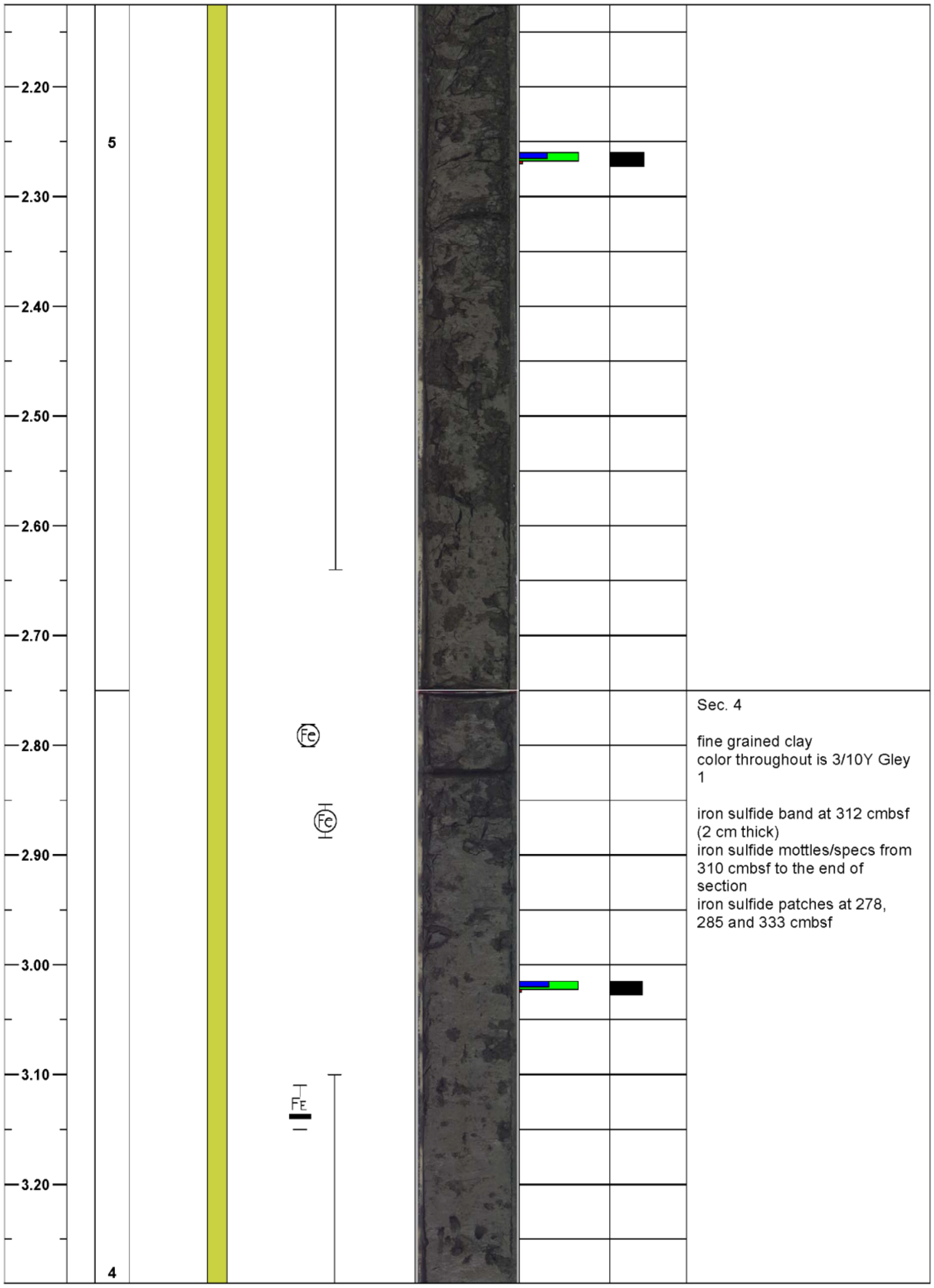
Please note that each core description is provided at a compressed scale so it fits on one page as well as an expanded scale which allows for more detailed examination of the records. For cores with no recovery a blank VCD is provided.

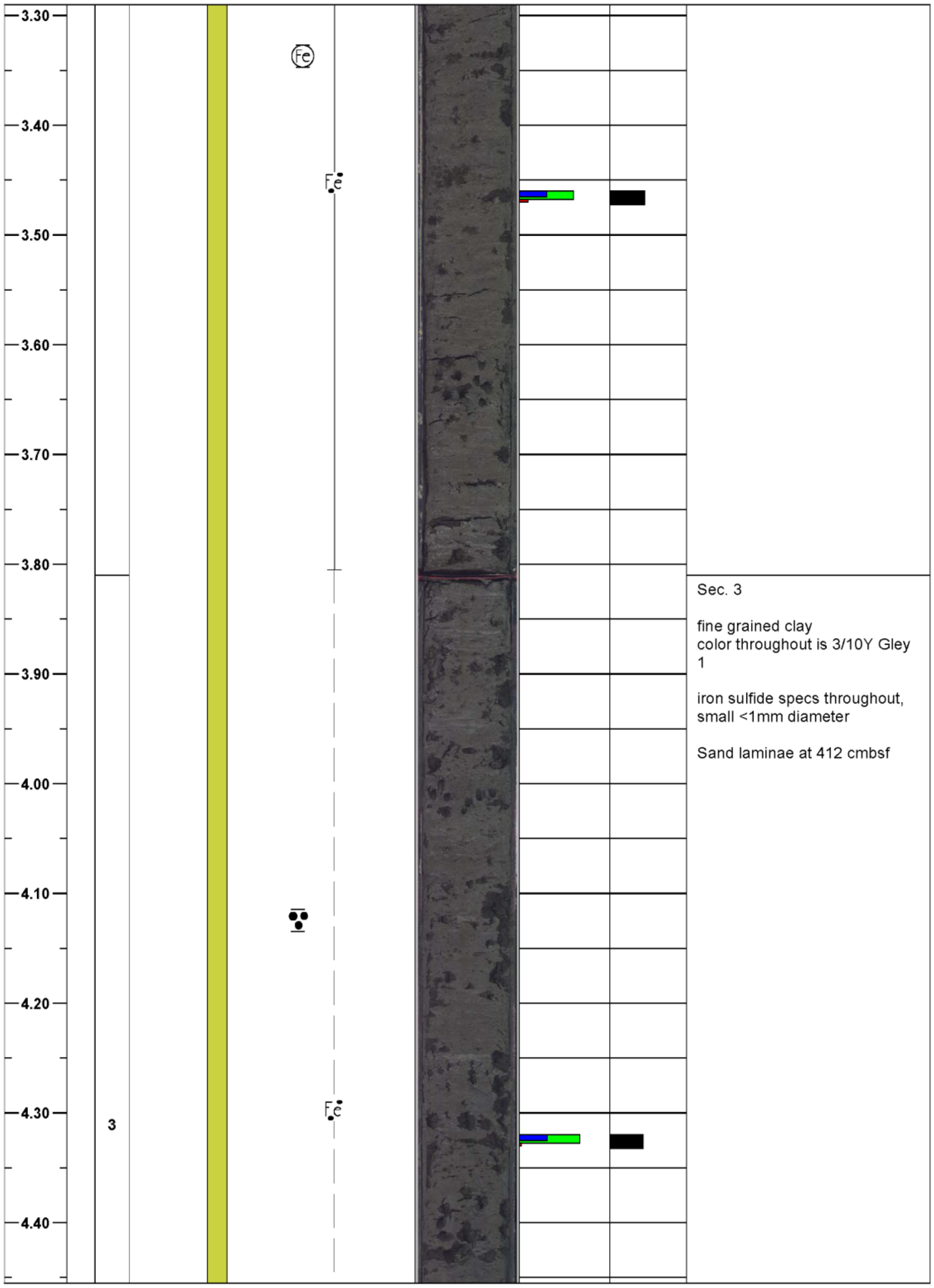

Visual Core Description - MITAS PS2009-09 PC01
CORE
Depth (meters)
Recovered / Core
Section
Lithology
grain size
pebble
silt
clay
Color
sed structure
Relative firmness
Sed features
Biogenic Forms
Disturbance & Bioturbation
Core Image
% Sand
100 0
% Silt
100 0
% Clay
0 100
GS - Mean
0 um 20
Description / Comments
0.10
0.20
0.30
0.40
PC01 - No Recovery

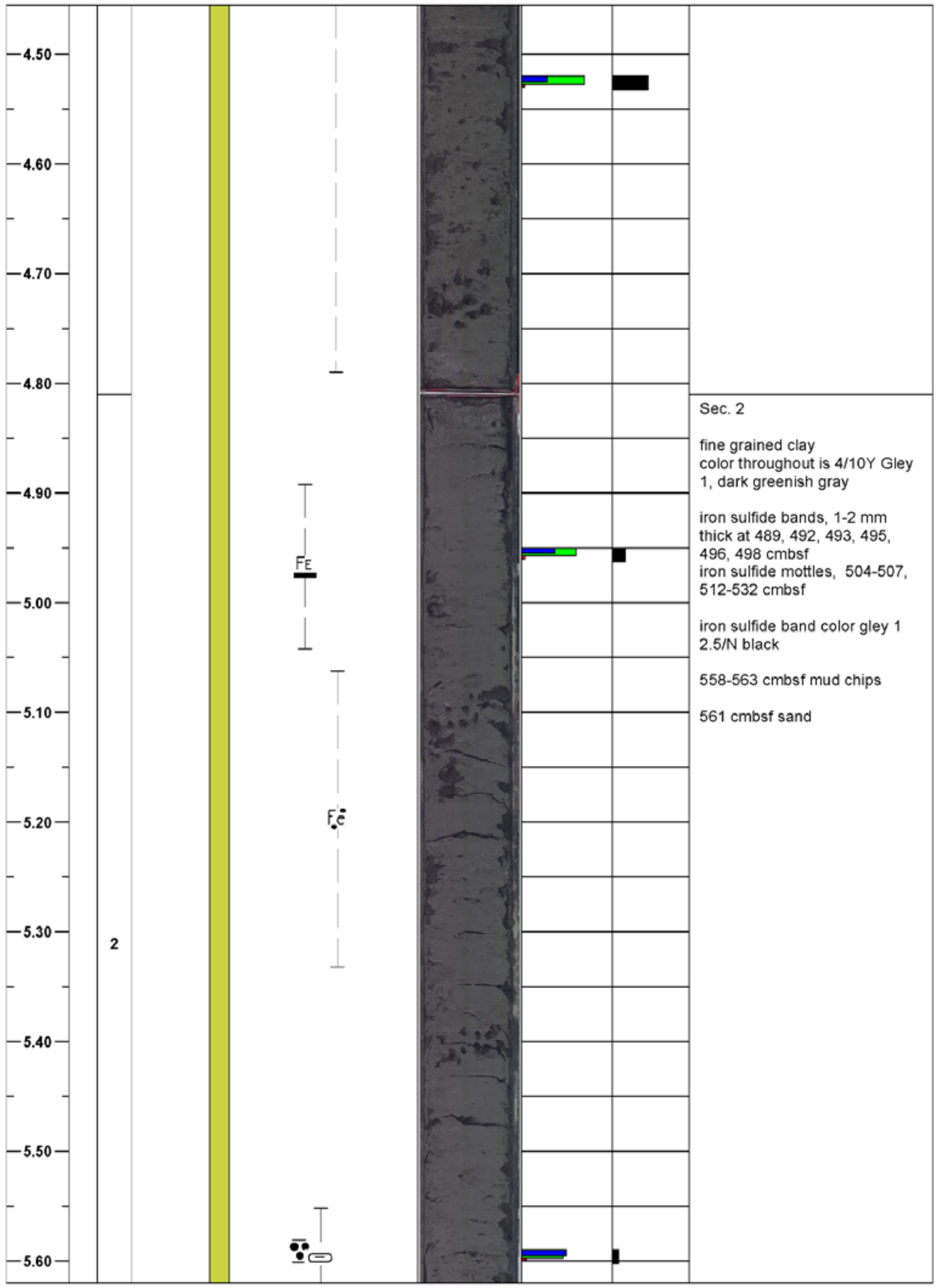

Visual Core Description - MITAS PS2009-09 PC02
Depth (meters)
Recovered / Core
CORE
Section
Lithology
grain size
pebble
silt
clay
sed structure
Sed Structure
Relative Firmness
Sed features
Biogenic Forms
Disturbance & Bioturbation
Core Image
% Sand
% Silt
% Clay
0 100
GS - Mean
0 um 10
Description / Comments
1.00
2.00
3.00
4.00
5.00
6.00
7.00
7
6
5
4
3
2
1
c
c
5-73 cm same color as section 6
Rare FeS specs throughout section (6 visible)
Sand laminae at 66 cm
Sec. 6
fine grained clay
color throughout is 3/10Y Gley 1
iron sulfide band at 94 cmbsf (0.5 cm thick)
iron sulfide mottles/specs throughout section
iron sulfide patch at 148 cmbsf
Sec. 5
fine grained clay
color throughout is 3/10Y Gley 1
iron sulfide mottles/specs abundant throughout section
Sand laminae at 196 cmbsf
Sec. 4
fine grained clay
color throughout is 3/10Y Gley 1
iron sulfide band at 312 cmbsf

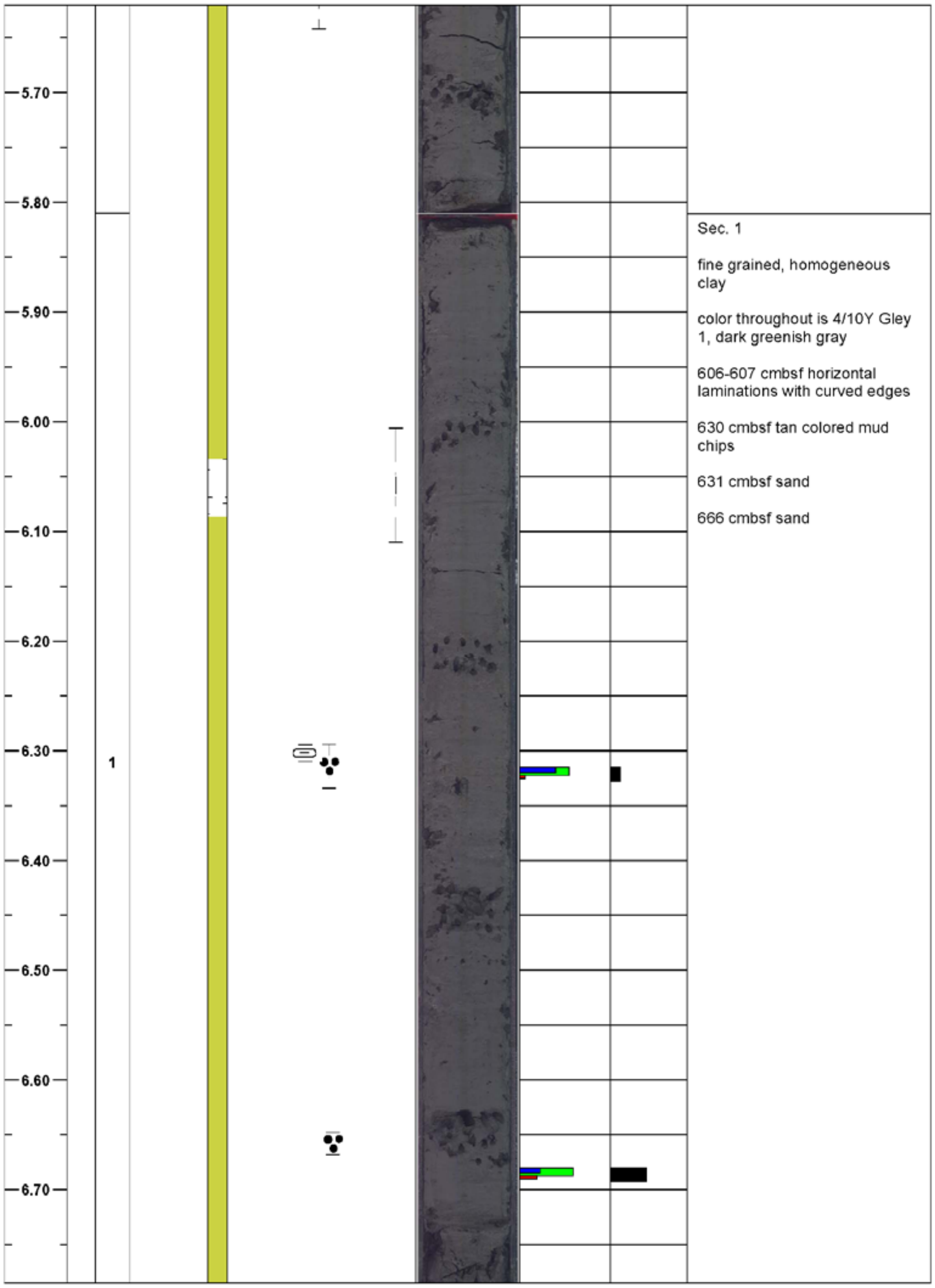

Visual Core Description - MITAS PS2009-09 PC02
Depth (meters)
Recovered / Core
CORE
Section
Lithology
grain size
silt
clay
sed structure
Sed Structure
Relative Firmness
Sed features
Biogenic Forms
Disturbance & Bioturbation
Core Image
% Sand
0 100
% Silt
0 100
% Clay
0 100
GS - Mean
0 um 10
Description / Comments
0.10
0.20
0.30
0.40
0.50
0.60
0.70
0.80
0.90
7
Sec. 7
0-5 cm lighter color 4/10Y Gley 1, fine grained clay
5-73 cm same color as section 6
Rare FeS specs throughout section (6 visible)
Sand laminae at 66 cm
Sec. 6
fine grained clay
color throughout is 3/10Y Gley 1
iron sulfide band at 94 cmbsf (0.5 cm thick)
iron sulfide mottles/specs throughout section
iron sulfide patch at 148 cmbsf

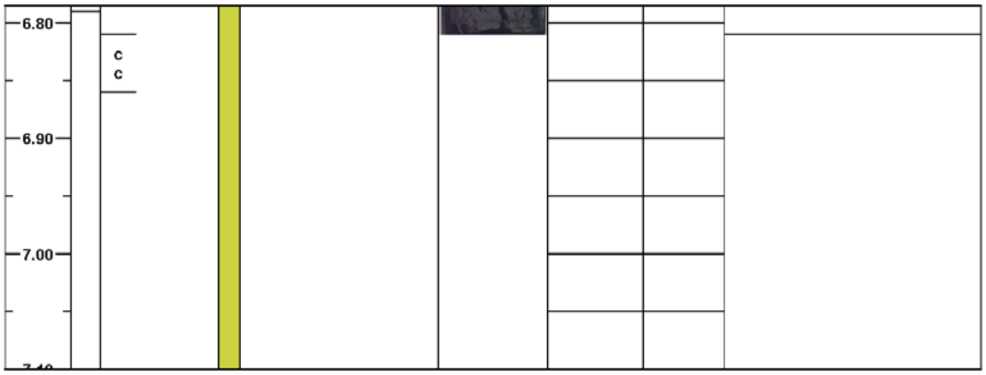

1.00
1.10
1.20
1.30
1.40
1.50
1.60
1.70
1.80
1.90
2.00
2.10
6
Sec. 5
fine grained clay
color throughout is 3/10Y Gley 1
iron sulfide mottles/specs abundant throughout section
Sand laminae at 196 cmbsf

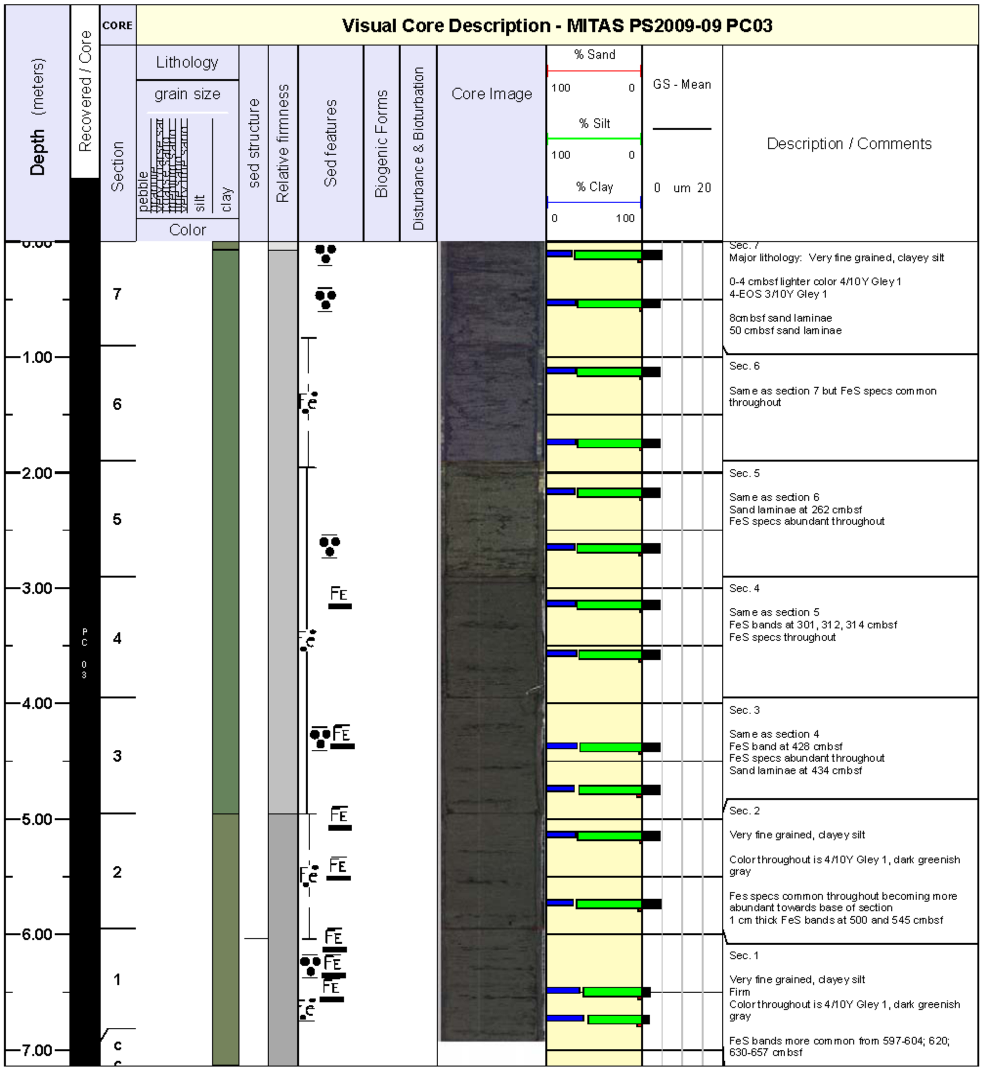

2.20
2.30
2.40
2.50
2.60
2.70
2.80
2.90
3.00
3.10
3.20
5
4
Fe
Sec. 4
fine grained clay
color throughout is 3/10Y Gley 1
iron sulfide band at 312 cmbsf (2 cm thick)
iron sulfide mottles/specs from 310 cmbsf to the end of section
iron sulfide patches at 278, 285 and 333 cmbsf

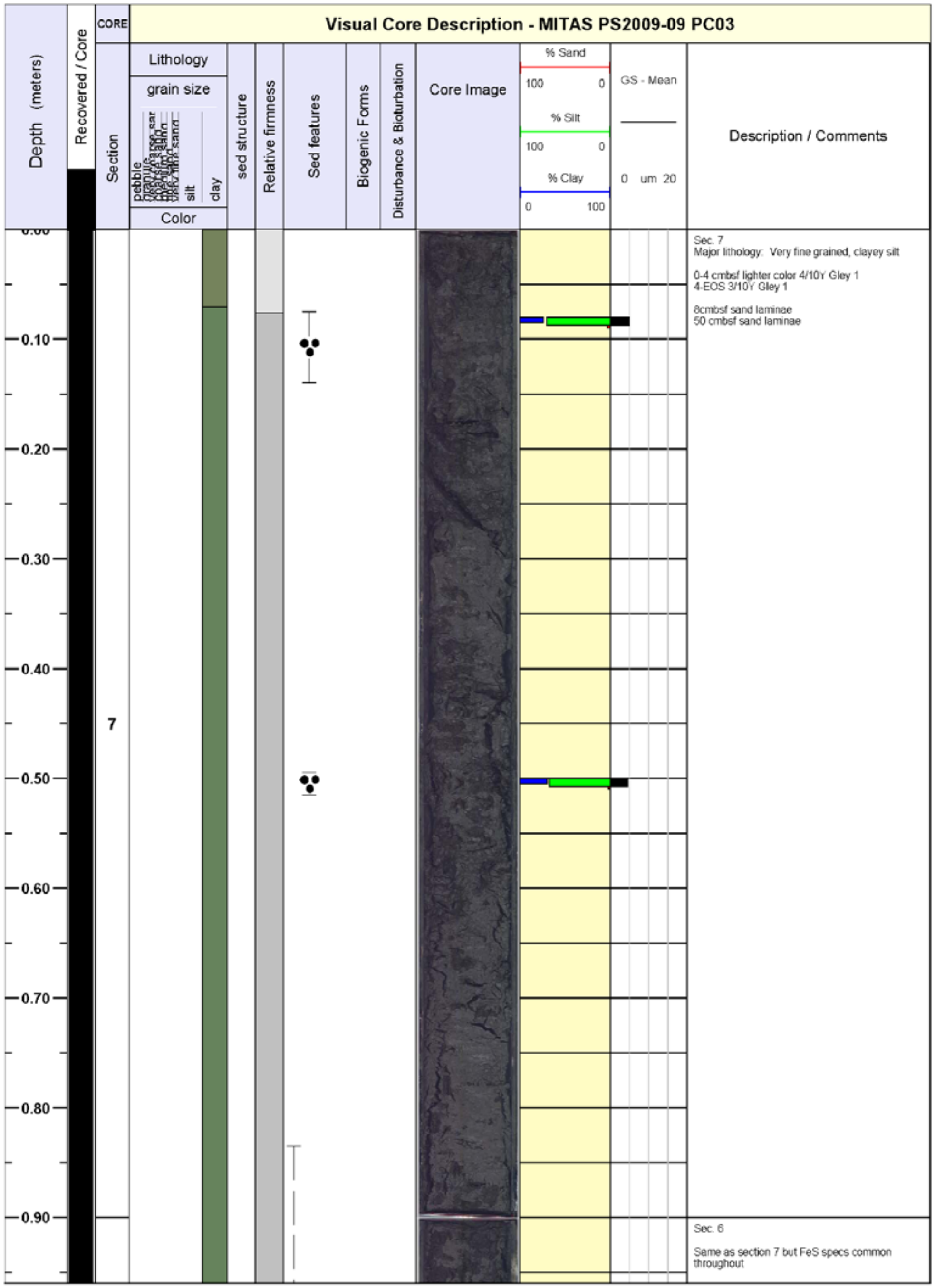

3.30
3.40
3.50
3.60
3.70
3.80
3.90
4.00
4.10
4.20
4.30
4.40
3
Fe
Sec. 3
fine grained clay
color throughout is 3/10Y Gley 1
iron sulfide specs throughout, small <1mm diameter
Sand laminae at 412 cmbsf

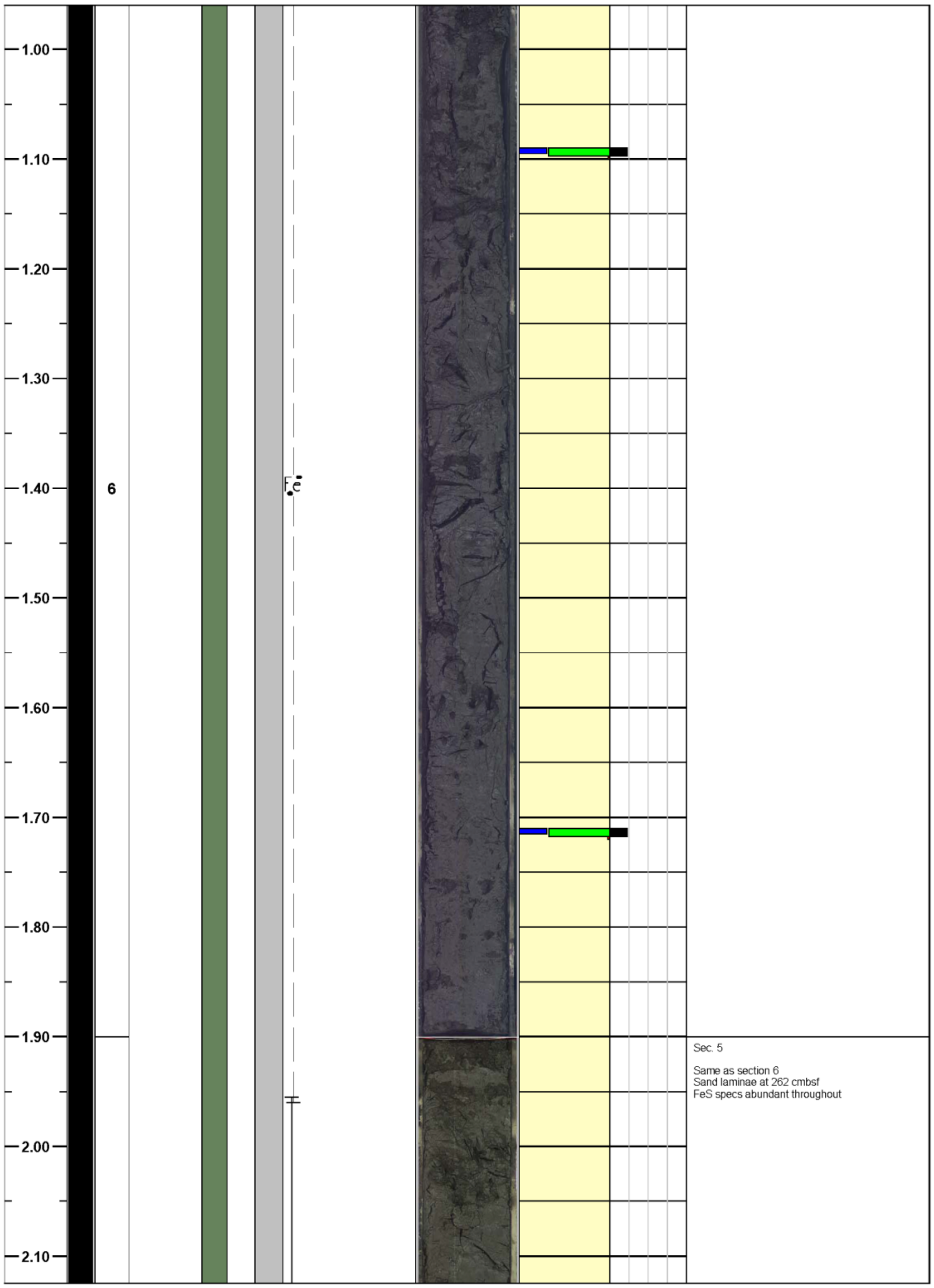

4.50
4.60
4.70
4.80
4.90
5.00
5.10
5.20
5.30
5.40
5.50
5.60
2
Fe
Fe
Sec. 2
fine grained clay
color throughout is 4/10Y Gley 1, dark greenish gray
iron sulfide bands, 1-2 mm thick at 489, 492, 493, 495, 496, 498 cmbsf
iron sulfide mottles, 504-507, 512-532 cmbsf
iron sulfide band color gley 1 2.5/N black
558-563 cmbsf mud chips
561 cmbsf sand

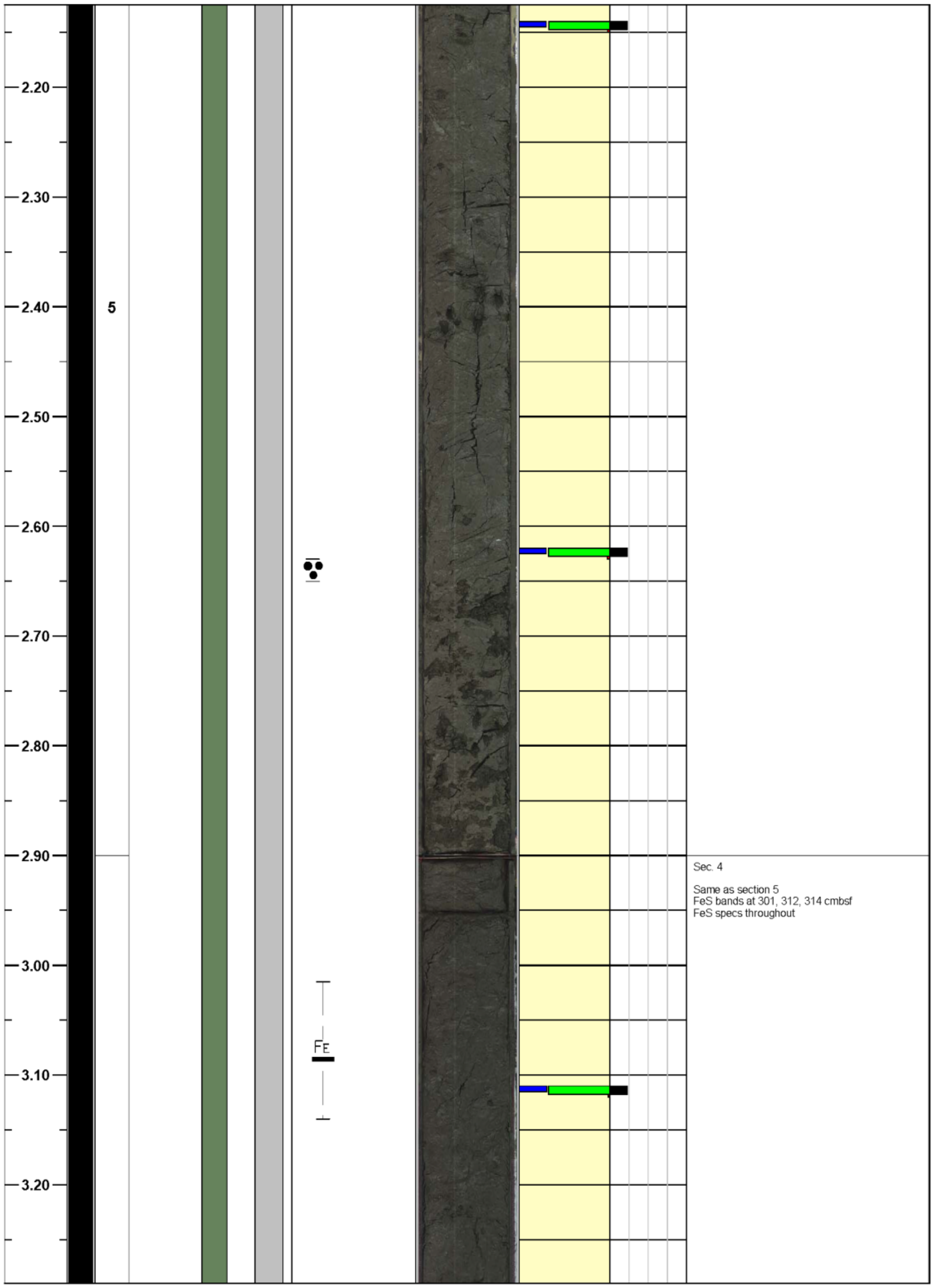

5.70
5.80
5.90
6.00
6.10
6.20
6.30
6.40
6.50
6.60
6.70
1
Sec. 1
fine grained, homogeneous clay
color throughout is 4/10Y Gley 1, dark greenish gray
606-607 cmbsf horizontal laminations with curved edges
630 cmbsf tan colored mud chips
631 cmbsf sand
666 cmbsf sand

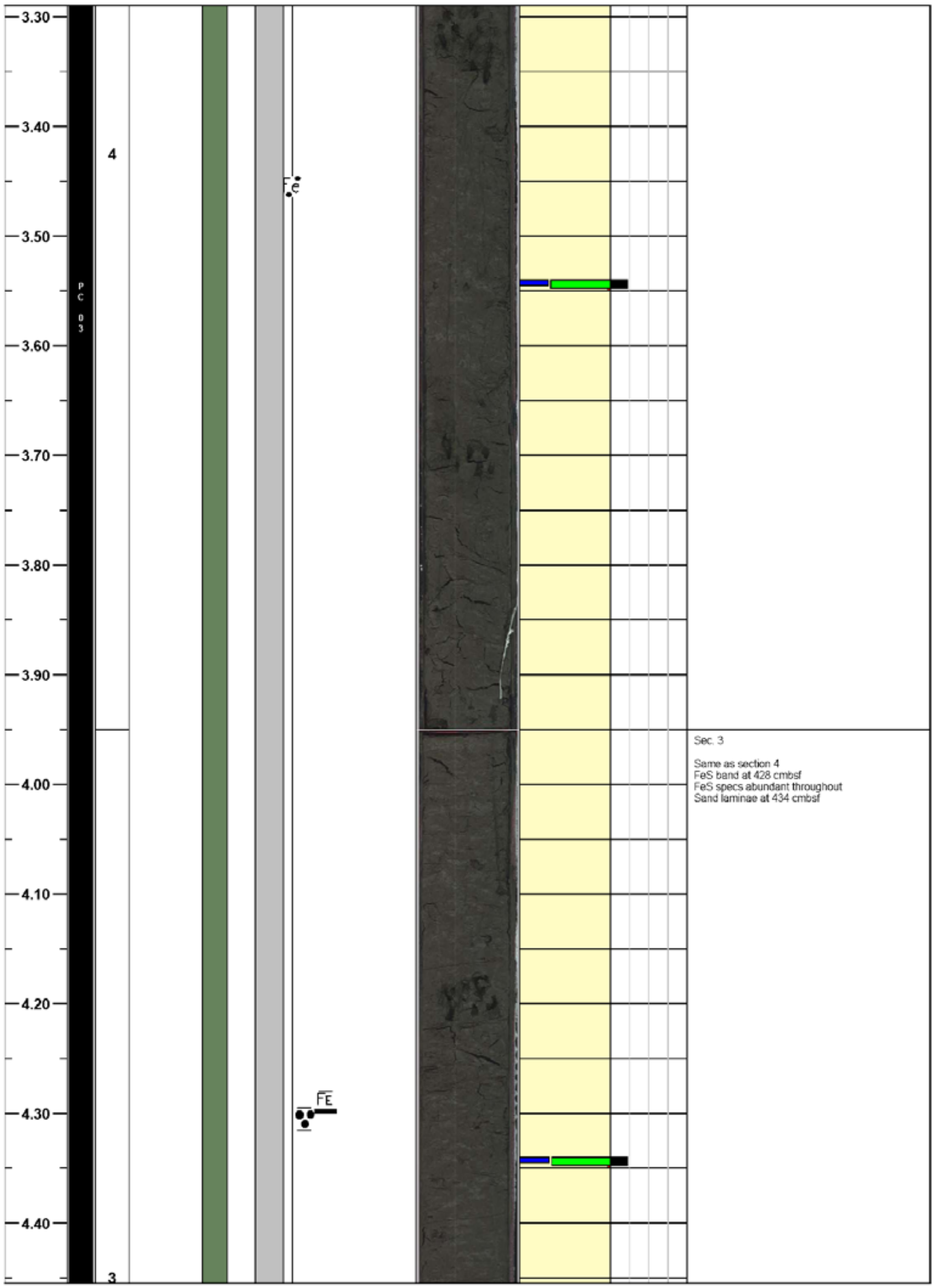

6.80
c
c
6.90
7.00

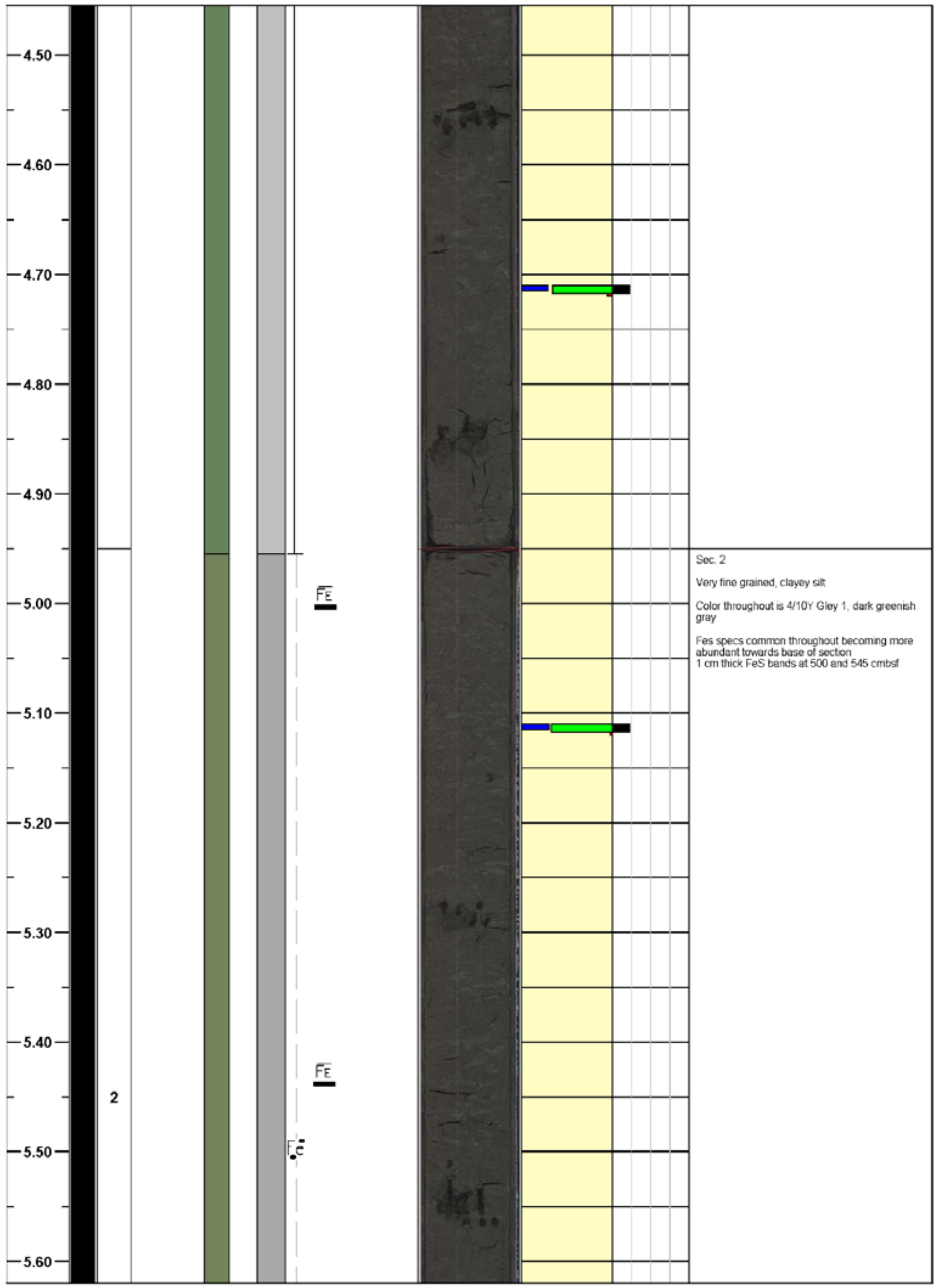

Visual Core Description - MITAS PS2009-09 PC03
CORE
Depth (meters)
Recovered / Core
Section
Lithology
grain size
pebble
silt
clay
Color
sed structure
Relative firmness
Sed features
Biogenic Forms
Disturbance & Bioturbation
Core Image
% Sand
100 0
% Silt
100 0
% Clay
0 100
GS - Mean
0 um 20
Description / Comments
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
7
6
5
4
3
2
1
c
PC 03
Sec. 7
Major lithology: Very fine grained, clayey silt
0-4 cmbsf lighter color 4/10Y Gley 1
4-EOS 3/10Y Gley 1
8cmbsf sand laminae
50 cmbsf sand laminae
Sec. 6
Same as section 7 but FeS specs common throughout
Sec. 5
Same as section 6
Sand laminae at 262 cmbsf
FeS specs abundant throughout
Sec. 4
Same as section 5
FeS bands at 301, 312, 314 cmbsf
FeS specs throughout
Sec. 3
Same as section 4
FeS band at 428 cmbsf
FeS specs abundant throughout
Sand laminae at 434 cmbsf
Sec. 2
Very fine grained, clayey silt
Color throughout is 4/10Y Gley 1, dark greenish gray
Fes specs common throughout becoming more abundant towards base of section
1 cm thick FeS bands at 500 and 545 cmbsf
Sec. 1
Very fine grained, clayey silt
Firm
Color throughout is 4/10Y Gley 1, dark greenish gray
FeS bands more common from 597-604; 620; 630-657 cmbsf

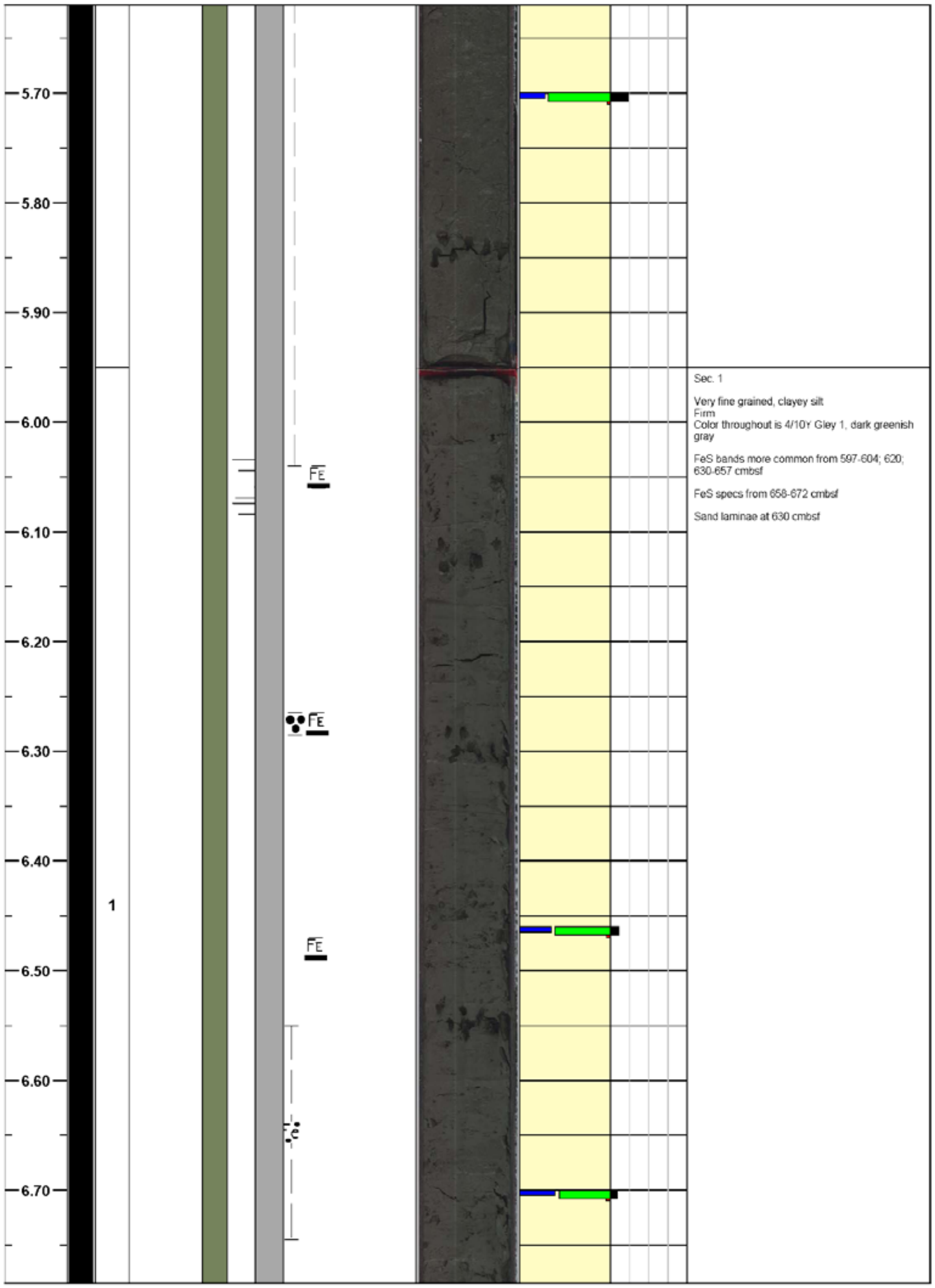

Visual Core Description - MITAS PS2009-09 PC03
Depth (meters)
Recovered / Core
CORE
Section
Lithology
grain size
silt
clay
Color
sed structure
Relative firmness
Sed features
Biogenic Forms
Disturbance & Bioturbation
Core Image
% Sand
100 0
% Silt
100 0
% Clay
0 100
GS - Mean
0 um 20
Description / Comments
0.10
0.20
0.30
0.40
0.50
0.60
0.70
0.80
0.90
7
Sec. 7
Major lithology: Very fine grained, clayey silt
0-4 cmbsf lighter color 4/10Y Gley 1
4-EOS 3/10Y Gley 1
8cmbsf sand laminae
50 cmbsf sand laminae
Sec. 6
Same as section 7 but FeS specs common throughout

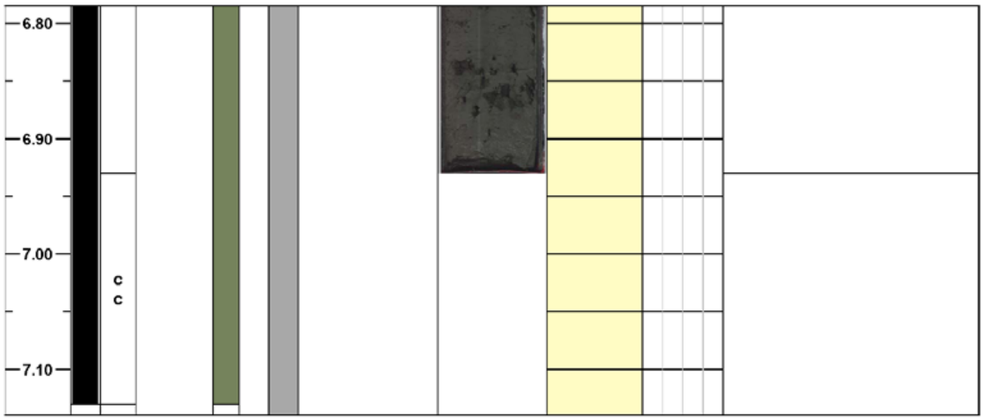

1.00
1.10
1.20
1.30
1.40
1.50
1.60
1.70
1.80
1.90
2.00
2.10
6
Fe
Sec. 5
Same as section 6
Sand laminae at 262 cmbsf
FeS specs abundant throughout

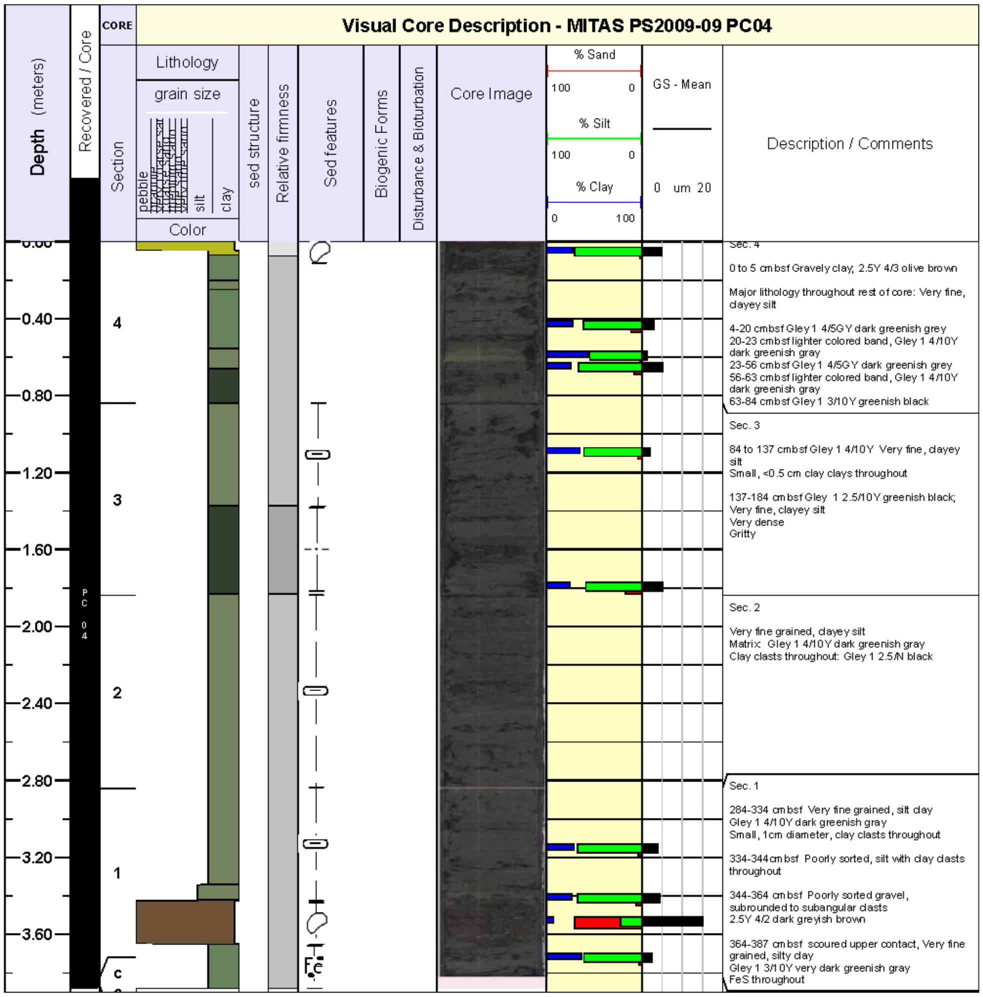

2.20
2.30
2.40
5
2.50
2.60
2.70
2.80
2.90
3.00
Fe
3.10
3.20
Sec. 4
Same as section 5
FeS bands at 301, 312, 314 cmbsf
FeS specs throughout

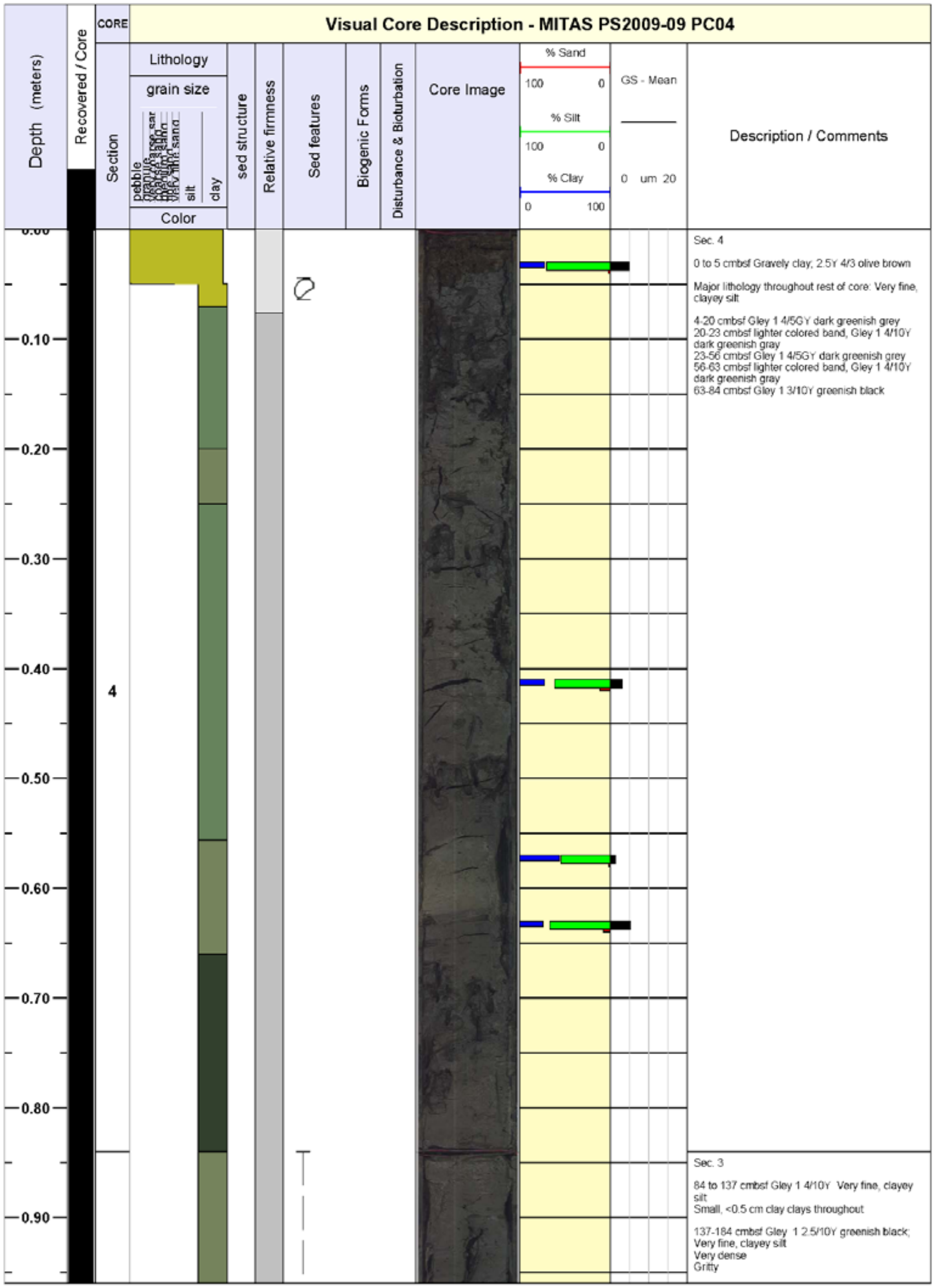

3.30
3.40
3.50
3.60
3.70
3.80
3.90
4.00
4.10
4.20
4.30
4.40
PC 03
4
3
Fe
FE
Sec. 3
Same as section 4
FeS band at 428 cmbsf
FeS specs abundant throughout
Sand laminae at 434 cmbsf


4.50
4.60
4.70
4.80
4.90
5.00
5.10
5.20
5.30
5.40
5.50
5.60
2
Sec. 2
Very fine grained, clayey silt
Color throughout is 4/10Y Gley 1, dark greenish gray
Fes specs common throughout becoming more abundant towards base of section
1 cm thick FeS bands at 500 and 545 cmbsf

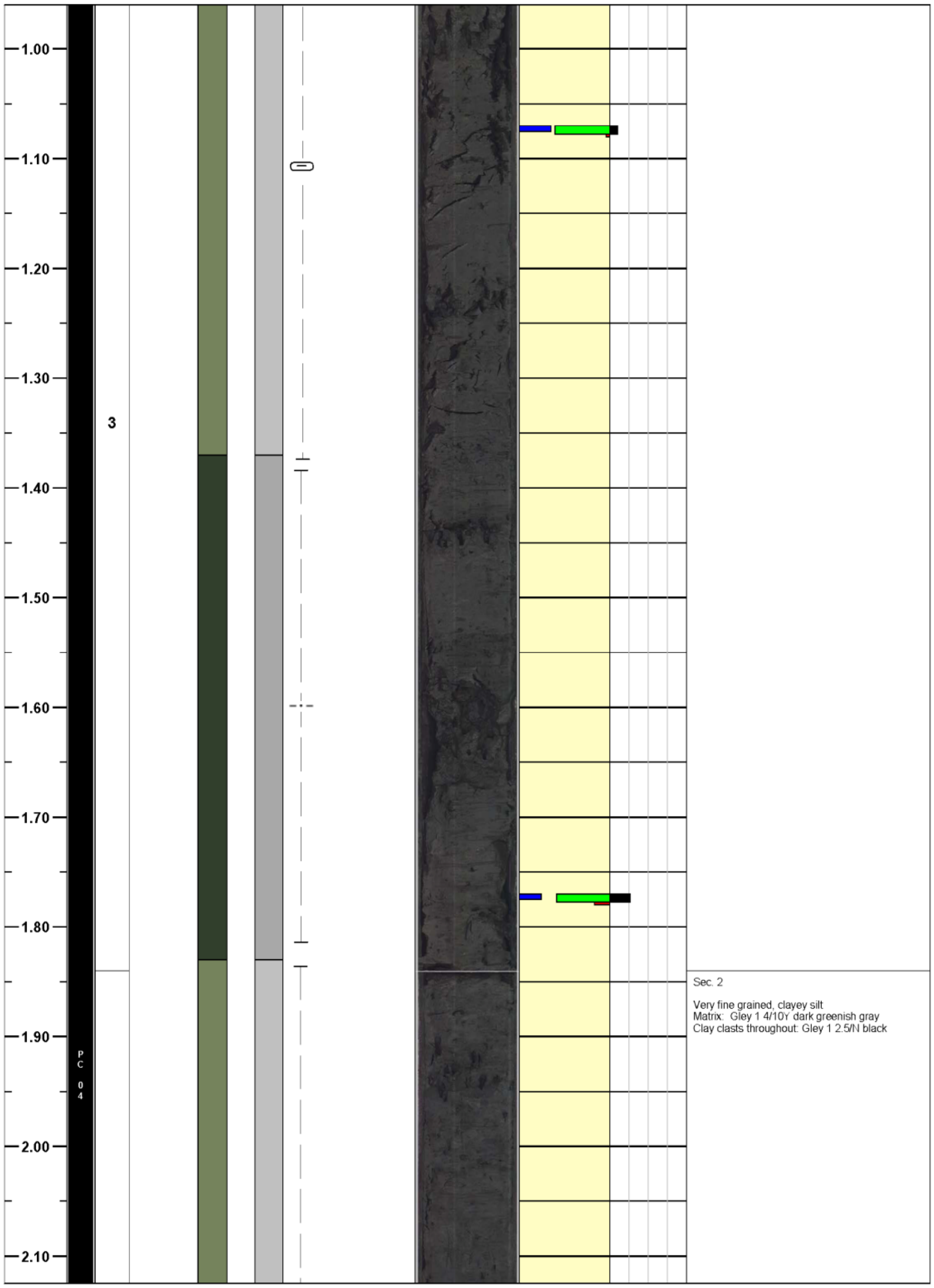

5.70
5.80
5.90
6.00
6.10
6.20
6.30
6.40
6.50
6.60
6.70
1
FE
FE
FE
Sec. 1
Very fine grained, clayey silt
Firm
Color throughout is 4/10Y Gley 1, dark greenish gray
FeS bands more common from 597-604; 620; 630-657 cmbsf
FeS specs from 658-672 cmbsf
Sand laminae at 630 cmbsf

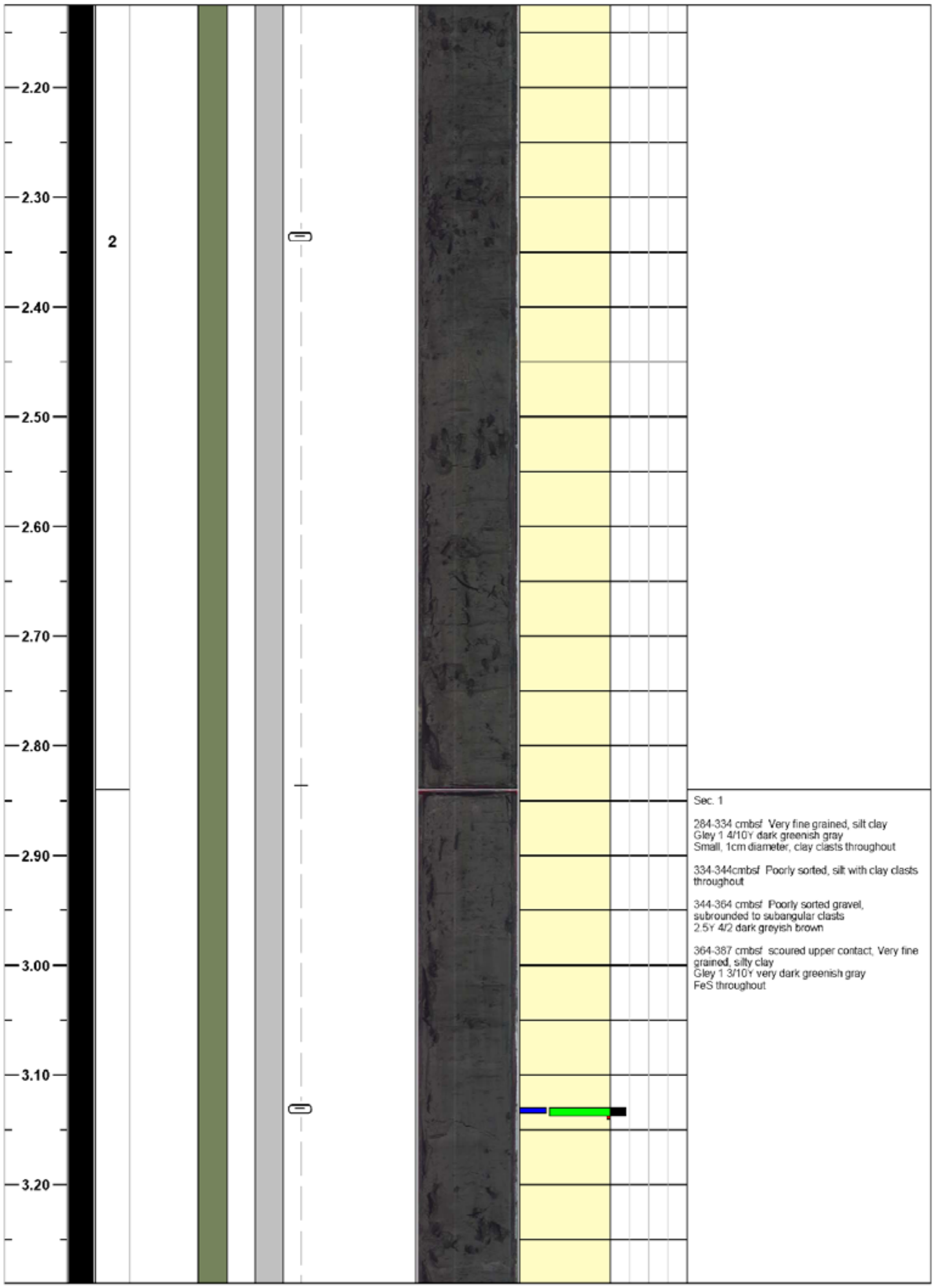

6.80
6.90
7.00
7.10
c
c

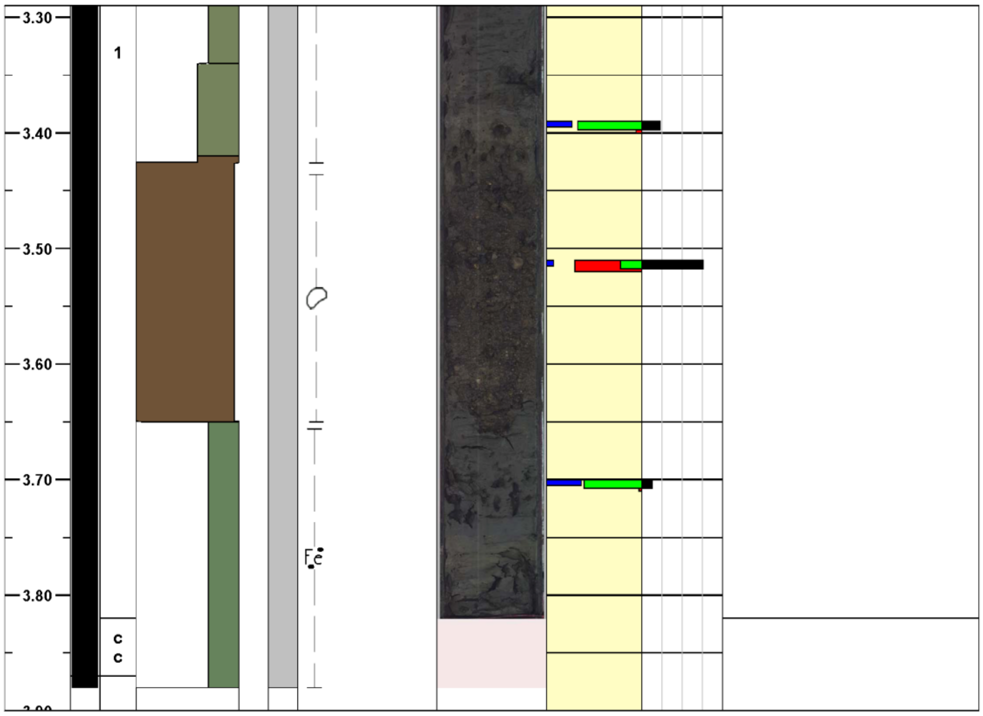

CORE
Visual Core Description - MITAS PS2009-09 PC04
Depth (meters)
Recovered / Core
Section
Lithology
grain size
pebble
silt
clay
Color
sed structure
Relative firmness
Sed features
Biogenic Forms
Disturbance & Bioturbation
Core Image
% Sand
100 0
% Silt
100 0
% Clay
0 100
GS - Mean
0 um 20
Description / Comments
0.40
0.80
1.20
1.60
2.00
2.40
2.80
3.20
3.60
4
3
2
1
c
Sec. 4
0 to 5 cmbsf Gravely clay; 2.5Y 4/3 olive brown
Major lithology throughout rest of core: Very fine, clayey silt
4-20 cmbsf Gley 1 4/5GY dark greenish grey
20-23 cmbsf lighter colored band, Gley 1 4/10Y dark greenish gray
23-56 cmbsf Gley 1 4/5GY dark greenish grey
56-63 cmbsf lighter colored band, Gley 1 4/10Y dark greenish gray
63-84 cmbsf Gley 1 3/10Y greenish black
Sec. 3
84 to 137 cmbsf Gley 1 4/10Y Very fine, clayey silt
Small, <0.5 cm clay clays throughout
137-184 cmbsf Gley 1 2.5/10Y greenish black;
Very fine, clayey silt
Very dense
Gritty
Sec. 2
Very fine grained, clayey silt
Matrix: Gley 1 4/10Y dark greenish gray
Clay clasts throughout: Gley 1 2.5/N black
Sec. 1
284-334 cmbsf Very fine grained, silt clay
Gley 1 4/10Y dark greenish gray
Small, 1cm diameter, clay clasts throughout
334-344cmbsf Poorly sorted, silt with clay clasts throughout
344-364 cmbsf Poorly sorted gravel, subrounded to subangular clasts
2.5Y 4/2 dark greyish brown
364-387 cmbsf scoured upper contact, Very fine grained, silty clay
Gley 1 3/10Y very dark greenish gray
FeS throughout

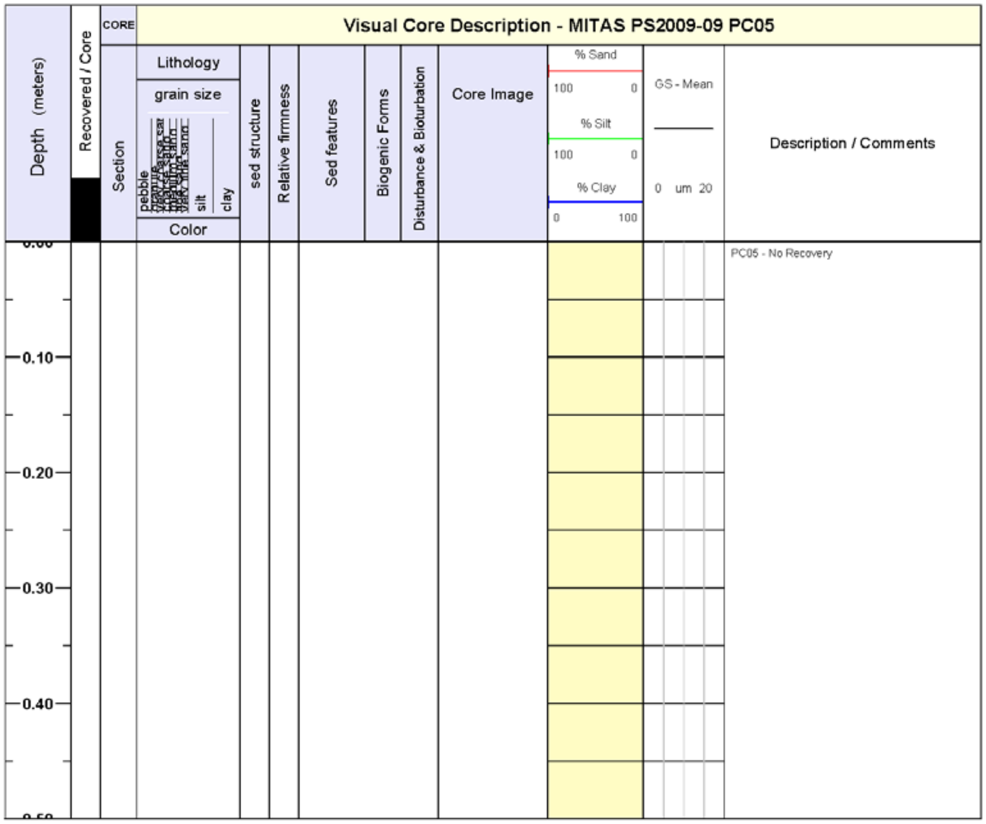


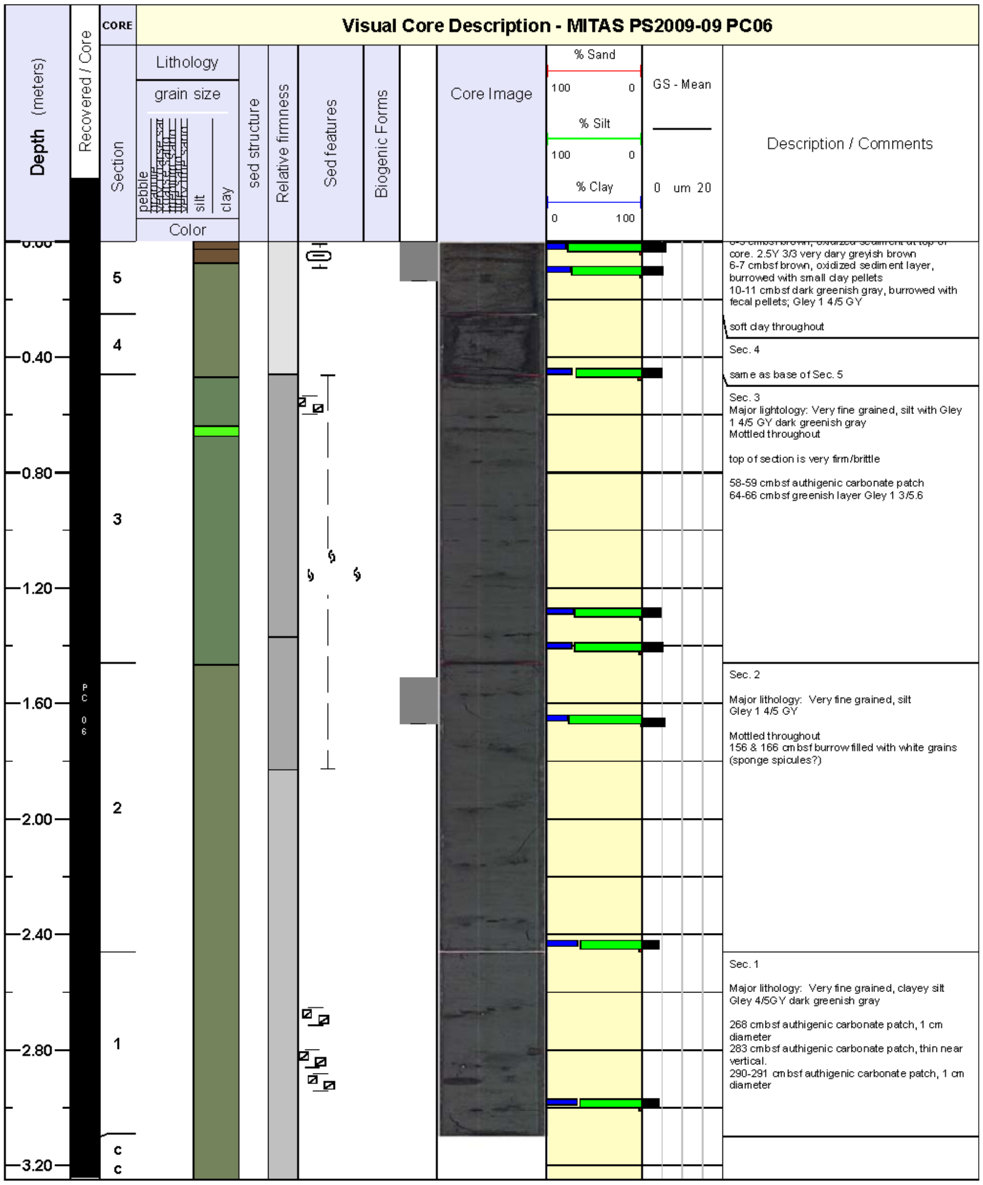
CORE
Visual Core Description - MITAS PS2009-09 PC04
Depth (meters)
Recovered / Core
Section
Lithology
grain size
silt
clay
Color
sed structure
Relative firmness
Sed features
Biogenic Forms
Disturbance & Bioturbation
Core Image
% Sand
100 0
% Silt
100 0
% Clay
0 100
GS - Mean
0 um 20
Description / Comments
0.10
0.20
0.30
0.40
0.50
0.60
0.70
0.80
0.90
4
Sec. 4
0 to 5 cmbsf Gravely clay; 2.5Y 4/3 olive brown
Major lithology throughout rest of core: Very fine, clayey silt
4-20 cmbsf Gley 1 4/5GY dark greenish grey
20-23 cmbsf lighter colored band, Gley 1 4/10Y dark greenish gray
23-56 cmbsf Gley 1 4/5GY dark greenish grey
56-63 cmbsf lighter colored band, Gley 1 4/10Y dark greenish gray
63-84 cmbsf Gley 1 3/10Y greenish black
Sec. 3
84 to 137 cmbsf Gley 1 4/10Y Very fine, clayey silt
Small, <0.5 cm clay clays throughout
137-184 cmbsf Gley 1 2.5/10Y greenish black; Very fine, clayey silt
Very dense
Gritty


1.00
1.10
1.20
1.30
1.40
1.50
1.60
1.70
1.80
1.90
2.00
2.10
3
PC 04
Sec. 2
Very fine grained, clayey silt
Matrix: Gley 1 4/10Y dark greenish gray
Clay clasts throughout: Gley 1 2.5/N black

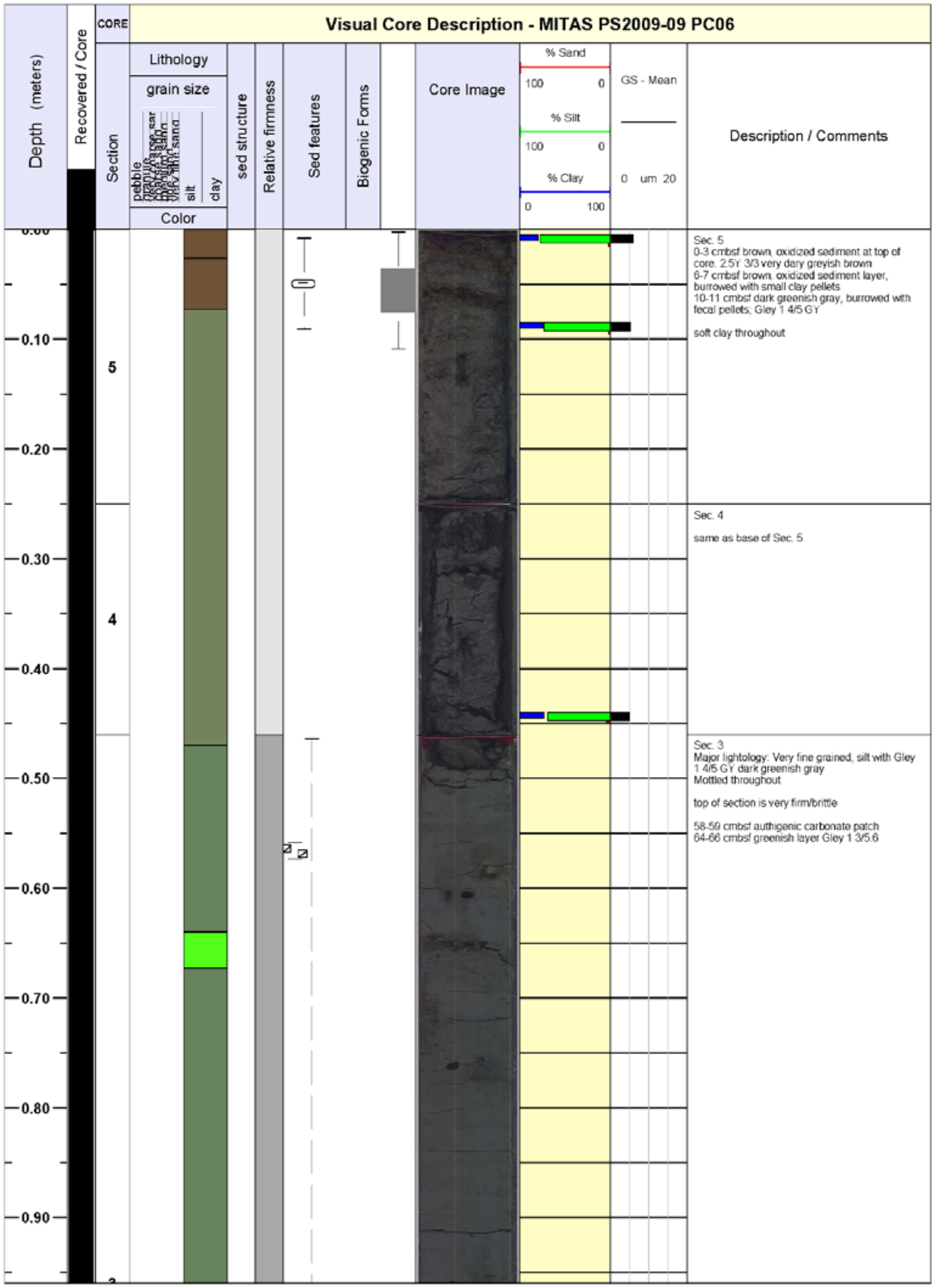

2.20
2.30
2.40
2.50
2.60
2.70
2.80
2.90
3.00
3.10
3.20
2
Sec. 1
284-334 cmbsf Very fine grained, silt clay
Gley 1 4/10Y dark greenish gray
Small, 1cm diameter, clay clasts throughout
334-344cmbsf Poorly sorted, silt with clay clasts throughout
344-364 cmbsf Poorly sorted gravel, subrounded to subangular clasts
2.5Y 4/2 dark greyish brown
364-387 cmbsf scoured upper contact, Very fine grained, silty clay
Gley 1 3/10Y very dark greenish gray
FeS throughout


3.30
3.40
3.50
3.60
3.70
3.80
1
c
c
Fe

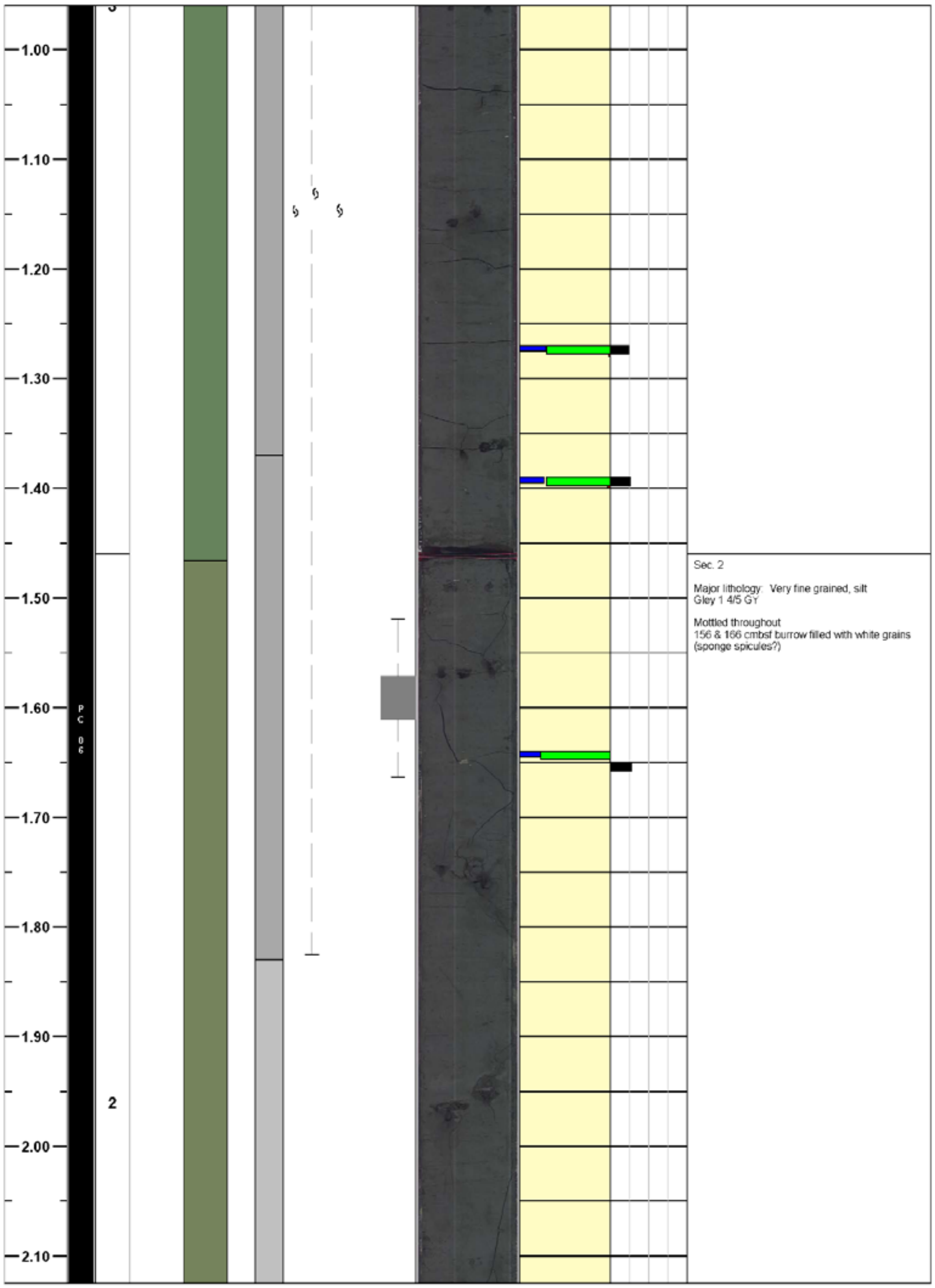

Visual Core Description - MITAS PS2009-09 PC05
Depth (meters)
Recovered / Core
CORE
Section
Lithology
grain size
pebble
silt
clay
Color
sed structure
Relative firmness
Sed features
Biogenic Forms
Disturbance & Bioturbation
Core Image
% Sand
100 0
% Silt
100 0
% Clay
0 100
GS - Mean
0 um 20
Description / Comments
PC05 - No Recovery
0.10
0.20
0.30
0.40

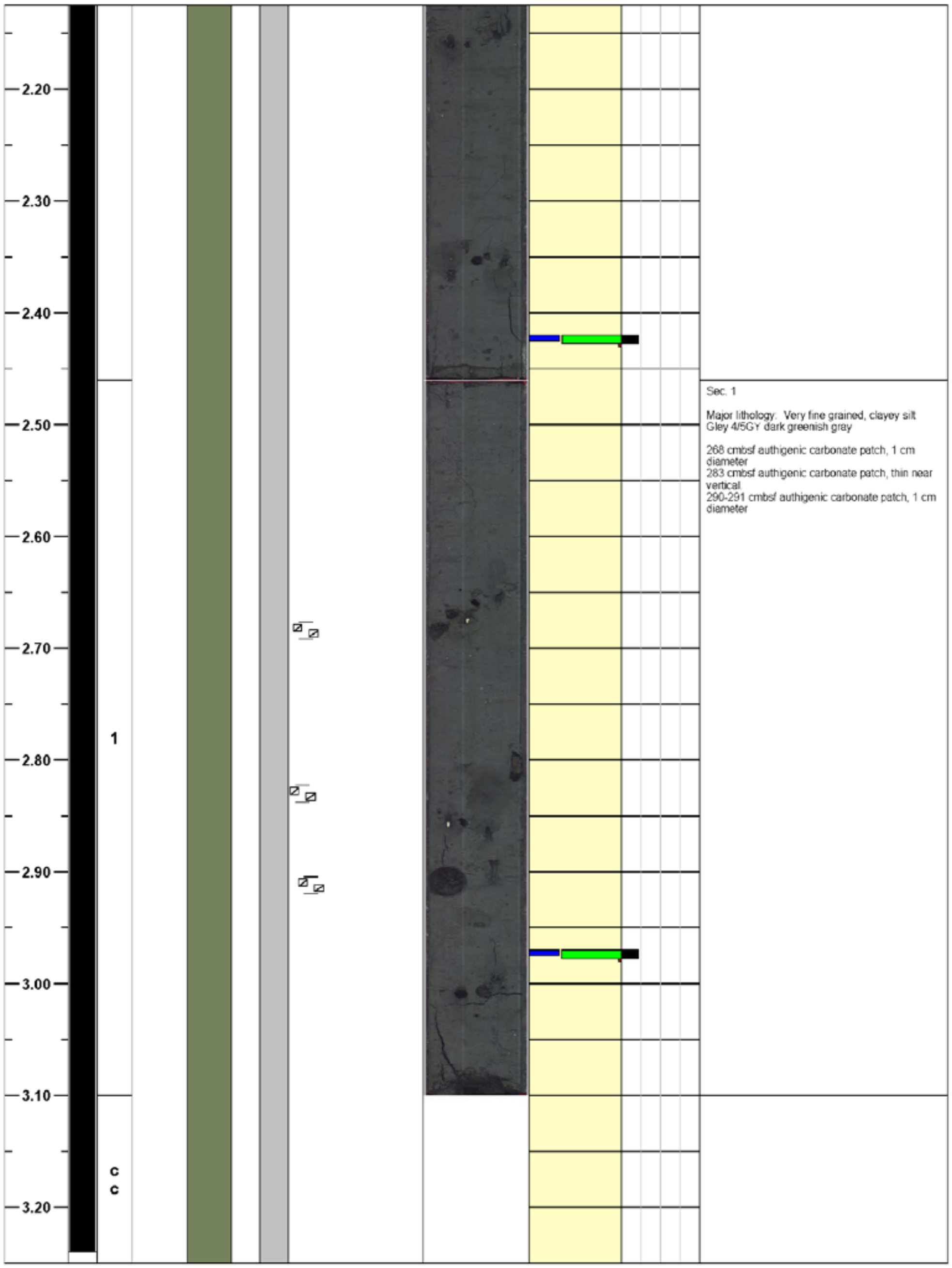


Visual Core Description - MITAS PS2009-09 PC06
CORE
Depth (meters)
Recovered / Core
Section
Lithology
grain size
pebble
silt
clay
Color
sed structure
Relative firmness
Sed features
Biogenic Forms
Core Image
% Sand
100 0
% Silt
100 0
% Clay
0 100
GS - Mean
0 um 20
Description / Comments
0.00
0.40
0.80
1.20
1.60
2.00
2.40
2.80
3.20
5
4
3
2
1
c
c
PC 06
core. 2.5Y 3/3 very dary greyish brown
6-7 cmbsf brown, oxidized sediment layer, burrowed with small clay pellets
10-11 cmbsf dark greenish gray, burrowed with fecal pellets; Gley 1 4/5 GY
soft clay throughout
Sec. 4
same as base of Sec. 5
Sec. 3
Major lightology: Very fine grained, silt with Gley 1 4/5 GY dark greenish gray
Mottled throughout
top of section is very firm/brittle
58-59 cmbsf authigenic carbonate patch
64-66 cmbsf greenish layer Gley 1 3/5.6
Sec. 2
Major lithology: Very fine grained, silt
Gley 1 4/5 GY
Mottled throughout
156 & 166 cmbsf burrow filled with white grains (sponge spicules?)
Sec. 1
Major lithology: Very fine grained, clayey silt
Gley 4/5GY dark greenish gray
268 cmbsf authigenic carbonate patch, 1 cm diameter
283 cmbsf authigenic carbonate patch, thin near vertical.
290-291 cmbsf authigenic carbonate patch, 1 cm diameter

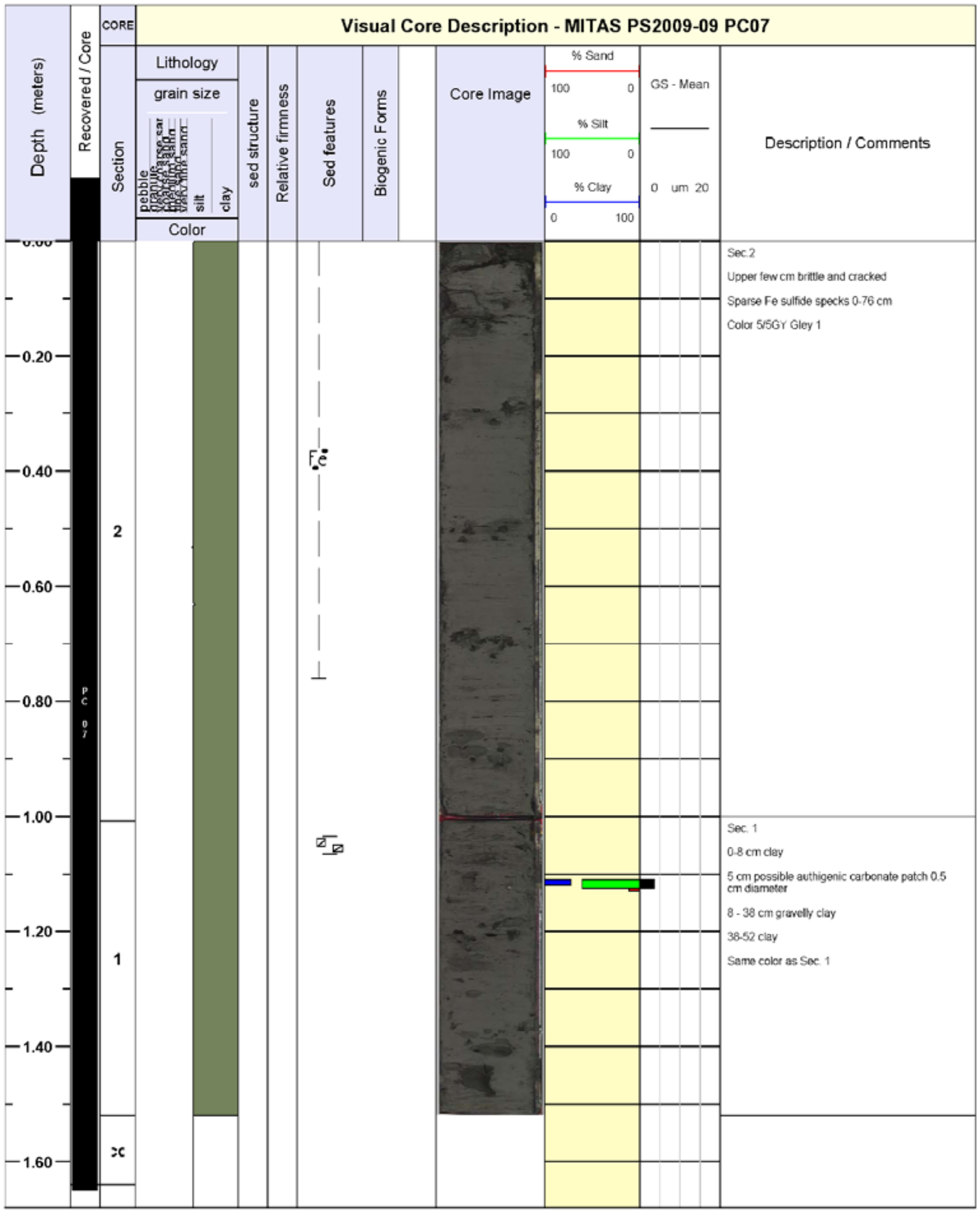


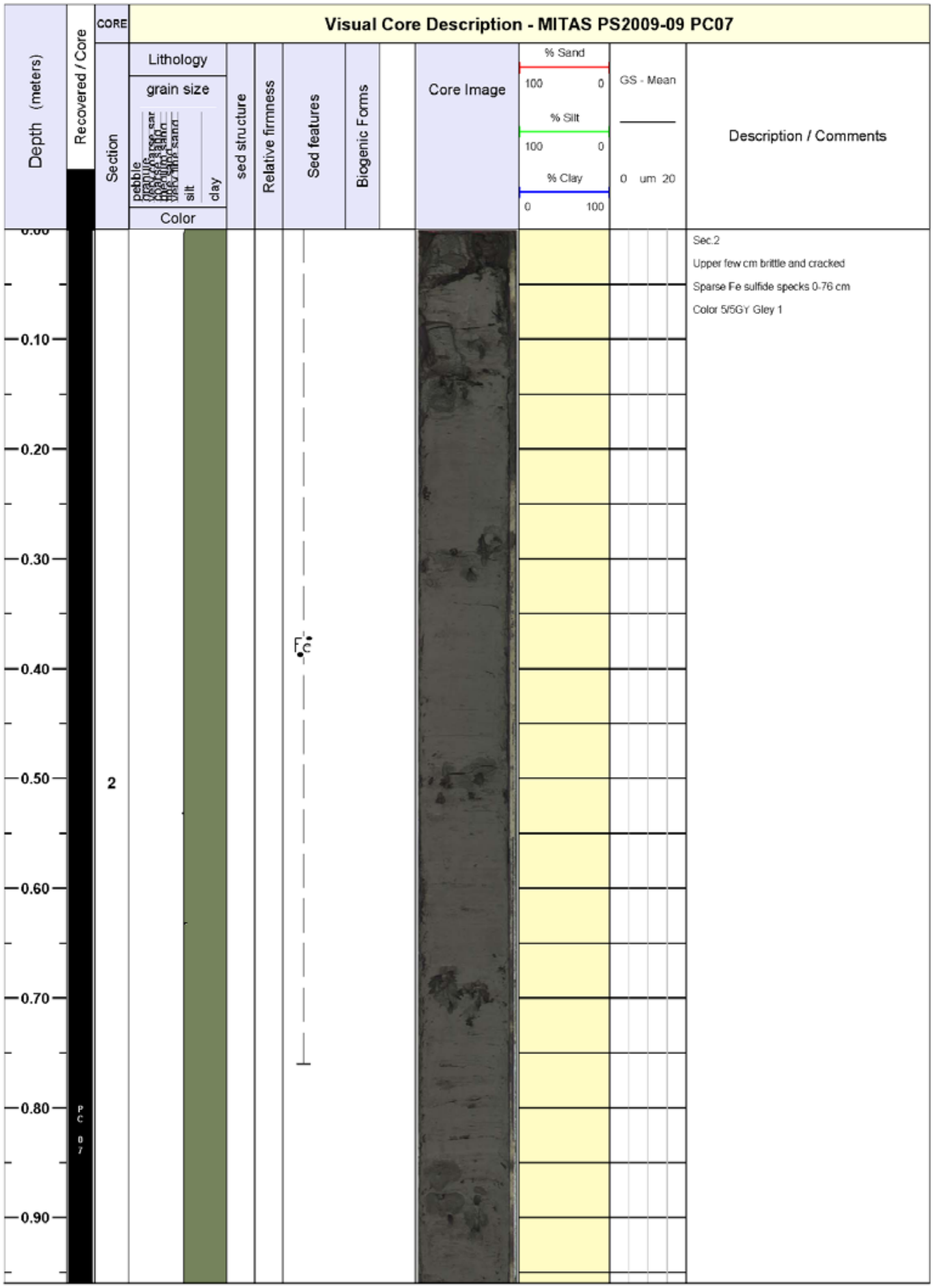
Visual Core Description - MITAS PS2009-09 PC06
CORE
Depth (meters)
Recovered / Core
Section
Lithology
grain size
silt
clay
Color
sed structure
Relative firmness
Sed features
Biogenic Forms
Core Image
% Sand
100
0
% Silt
100
0
% Clay
0
100
GS - Mean
0 um 20
Description / Comments
0.10
0.20
0.30
0.40
0.50
0.60
0.70
0.80
0.90
5
4
Sec. 5
0-3 cmbsf brown, oxidized sediment at top of core. 2.5Y 3/3 very dary greyish brown
6-7 cmbsf brown, oxidized sediment layer, burrowed with small clay pellets
10-11 cmbsf dark greenish gray, burrowed with fecal pellets; Gley 1 4/5 GY
soft clay throughout
Sec. 4
same as base of Sec. 5
Sec. 3
Major lightology: Very fine grained, silt with Gley 1 4/5 GY dark greenish gray
Mottled throughout
top of section is very firm/brittle
58-59 cmbsf authigenic carbonate patch
64-66 cmbsf greenish layer Gley 1 3/5.6

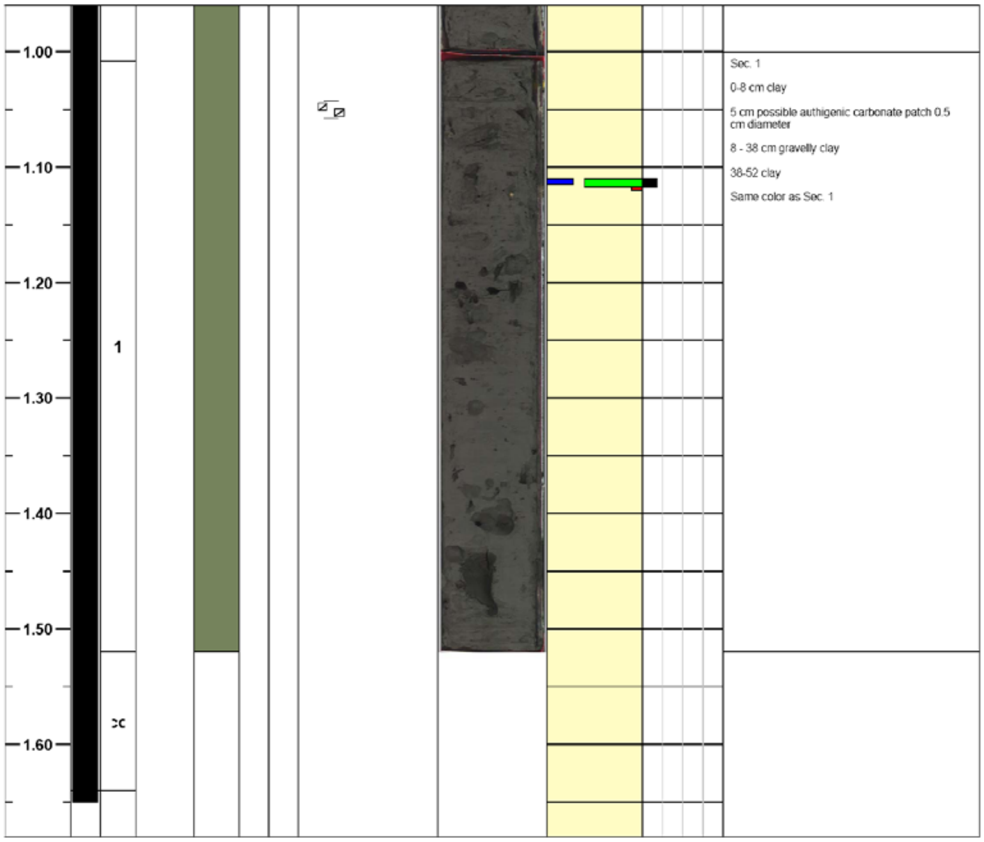

1.00
1.10
1.20
1.30
1.40
1.50
1.60
1.70
1.80
1.90
2.00
2.10
P C 06
2
Sec. 2
Major lithology: Very fine grained, silt
Gley 1 4/5 GY
Mottled throughout
156 & 166 cmbsf burrow filled with white grains
(sponge spicules?)

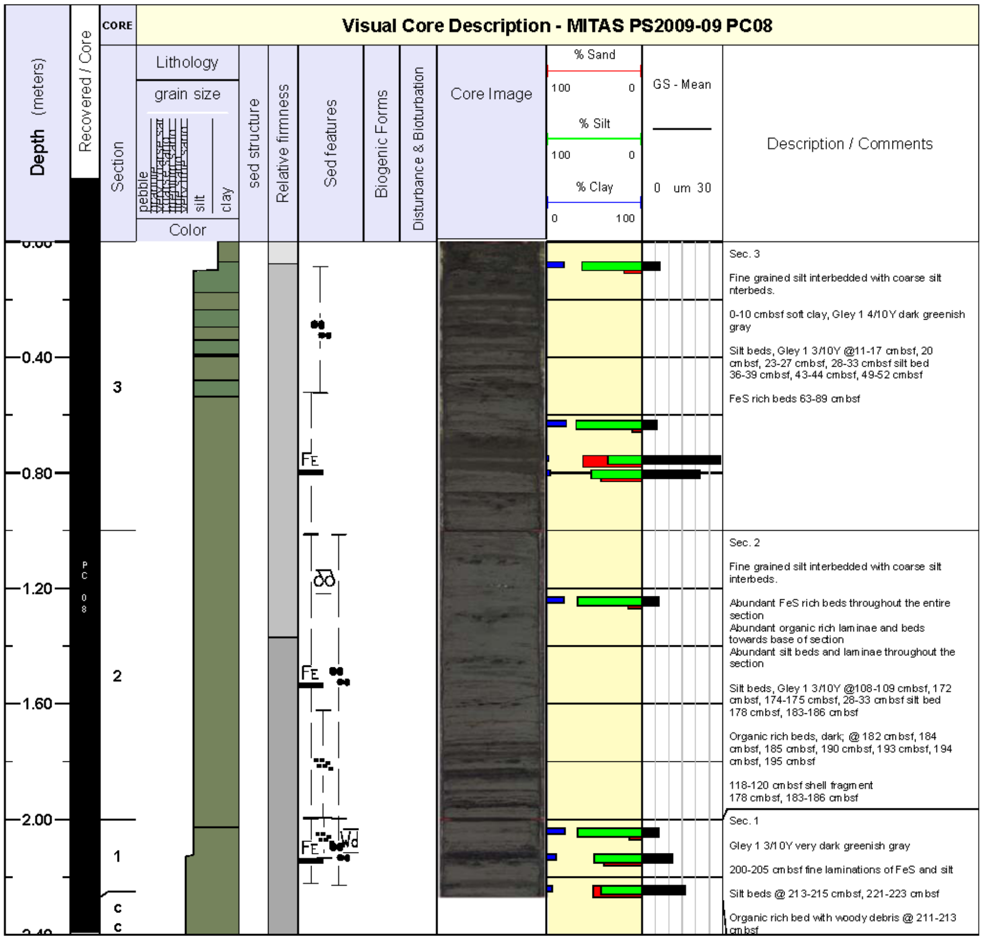


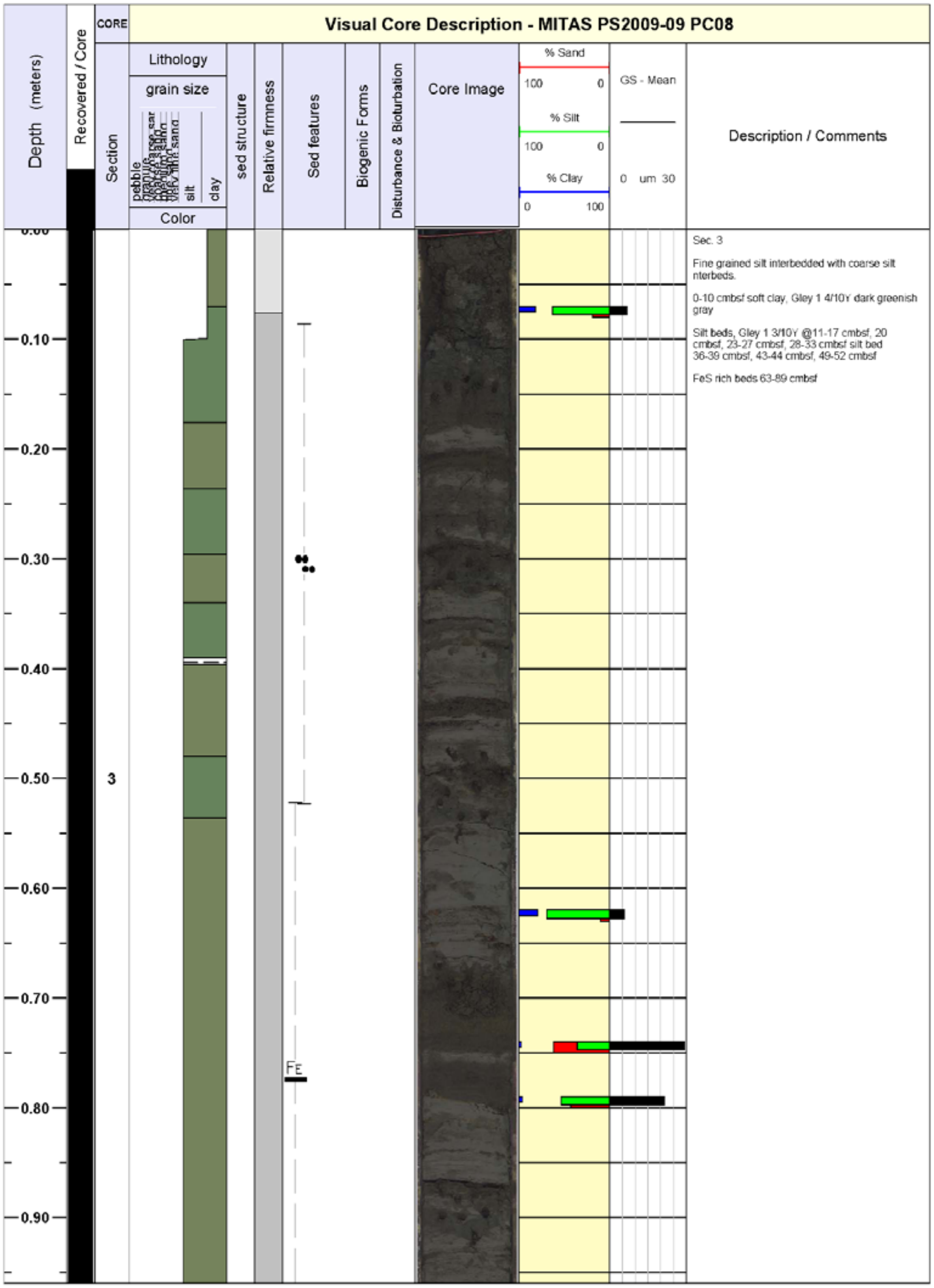
2.20
2.30
2.40
2.50
2.60
2.70
2.80
2.90
3.00
3.10
3.20
1
C
C
Sec. 1
Major lithology: Very fine grained, clayey silt
Gley 4/5GY dark greenish gray
268 cmbsf authigenic carbonate patch, 1 cm diameter
283 cmbsf authigenic carbonate patch, thin near vertical
290-291 cmbsf authigenic carbonate patch, 1 cm diameter

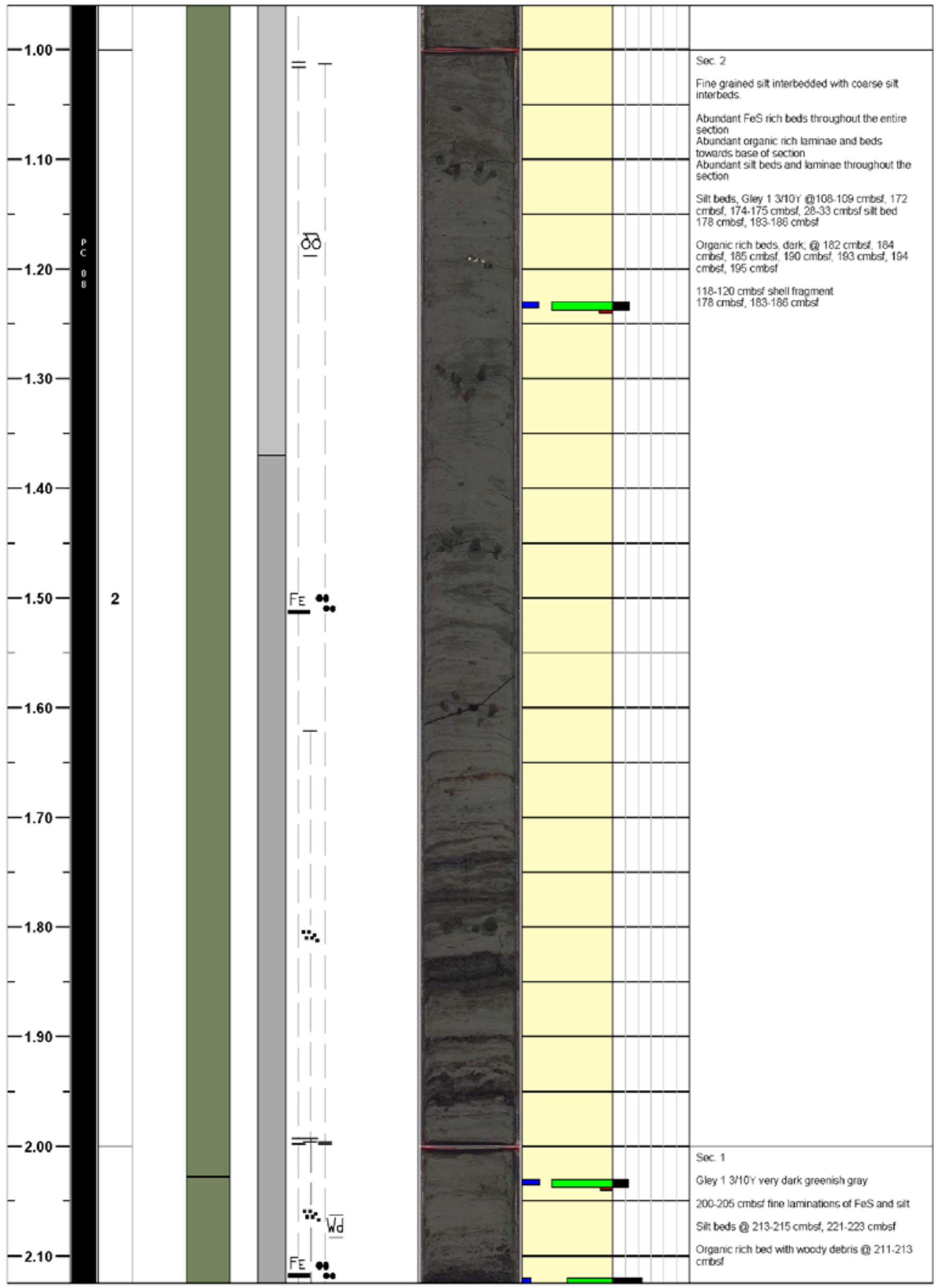

Visual Core Description - MITAS PS2009-09 PC07
CORE
Depth (meters)
Recovered / Core
Section
Lithology
grain size
pebble
granule
silt
clay
Color
sed structure
Relative firmness
Sed features
Biogenic Forms
Core Image
% Sand
100 0
% Silt
100 0
% Clay
0 100
GS - Mean
0 um 20
Description / Comments
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
2
1
PC 07
Sec.2
Upper few cm brittle and cracked
Sparse Fe sulfide specks 0-76 cm
Color 5/5GY Gley 1
Sec. 1
0-8 cm clay
5 cm possible authigenic carbonate patch 0.5 cm diameter
8 - 38 cm gravelly clay
38-52 clay
Same color as Sec. 1

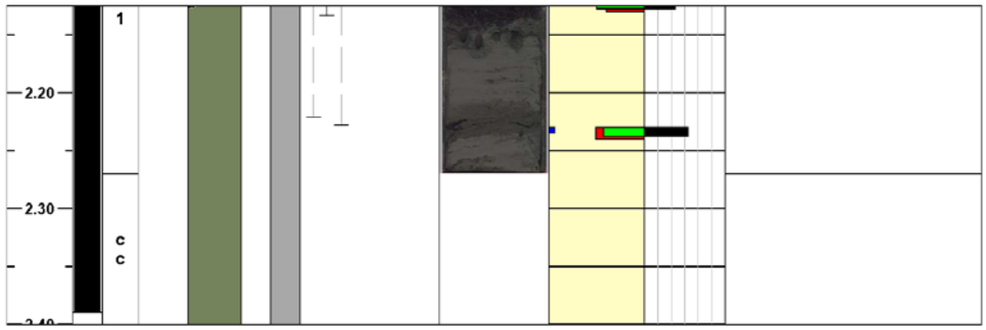

Visual Core Description - MITAS PS2009-09 PC07
CORE
Depth (meters)
Recovered / Core
Section
Lithology
grain size
silt
clay
Color
sed structure
Relative firmness
Sed features
Biogenic Forms
Core Image
% Sand
100
0
% Silt
100
0
% Clay
0
100
GS - Mean
0 um 20
Description / Comments
0.10
0.20
0.30
0.40
0.50
0.60
0.70
0.80
0.90
2
Sec.2
Upper few cm brittle and cracked
Sparse Fe sulfide specks 0-76 cm
Color 5/5GY Gley 1

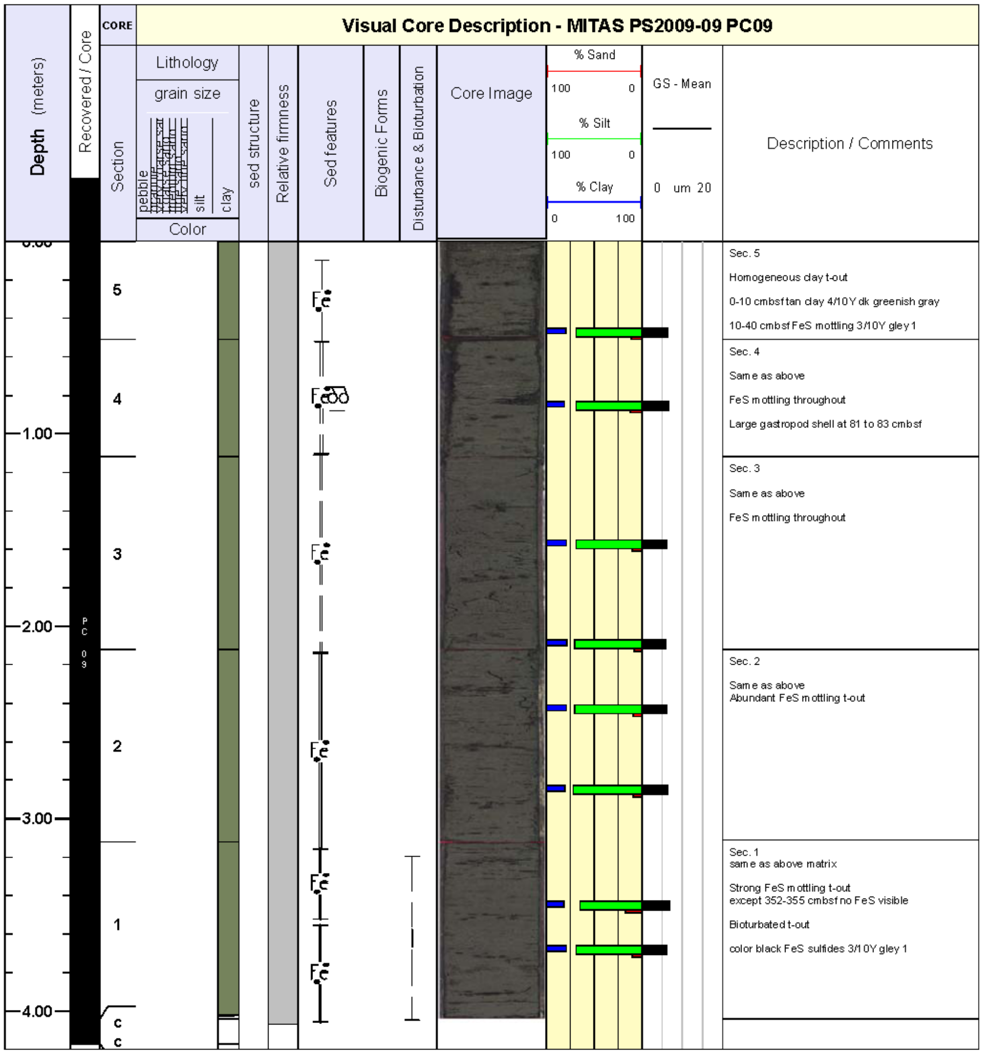

1.00
1.10
1.20
1.30
1.40
1.50
1.60
1
cc
Sec. 1
0-8 cm clay
5 cm possible authigenic carbonate patch 0.5 cm diameter
8 - 38 cm gravelly clay
38-52 clay
Same color as Sec. 1


Visual Core Description - MITAS PS2009-09 PC08
CORE
Depth (meters)
Recovered / Core
Section
Lithology
grain size
pebble
silt
clay
Color
sed structure
Relative firmness
Sed features
Biogenic Forms
Disturbance & Bioturbation
Core Image
% Sand
100 0
% Silt
100 0
% Clay
0 100
GS - Mean
0 um 30
Description / Comments
0.40
0.80
1.20
1.60
2.00
3
2
1
c
c
PC 08
FE
Wd
Sec. 3
Fine grained silt interbedded with coarse silt nterbeds.
0-10 cmbsf soft clay, Gley 1 4/10Y dark greenish gray
Silt beds, Gley 1 3/10Y @11-17 cmbsf, 20 cmbsf, 23-27 cmbsf, 28-33 cmbsf silt bed 36-39 cmbsf, 43-44 cmbsf, 49-52 cmbsf
FeS rich beds 63-89 cmbsf
Sec. 2
Fine grained silt interbedded with coarse silt interbeds.
Abundant FeS rich beds throughout the entire section
Abundant organic rich laminae and beds towards base of section
Abundant silt beds and laminae throughout the section
Silt beds, Gley 1 3/10Y @108-109 cmbsf, 172 cmbsf, 174-175 cmbsf, 28-33 cmbsf silt bed 178 cmbsf, 183-186 cmbsf
Organic rich beds, dark; @ 182 cmbsf, 184 cmbsf, 185 cmbsf, 190 cmbsf, 193 cmbsf, 194 cmbsf, 195 cmbsf
118-120 cmbsf shell fragment
178 cmbsf, 183-186 cmbsf
Sec. 1
Gley 1 3/10Y very dark greenish gray
200-205 cmbsf fine laminations of FeS and silt
Silt beds @ 213-215 cmbsf, 221-223 cmbsf
Organic rich bed with woody debris @ 211-213 cmbsf

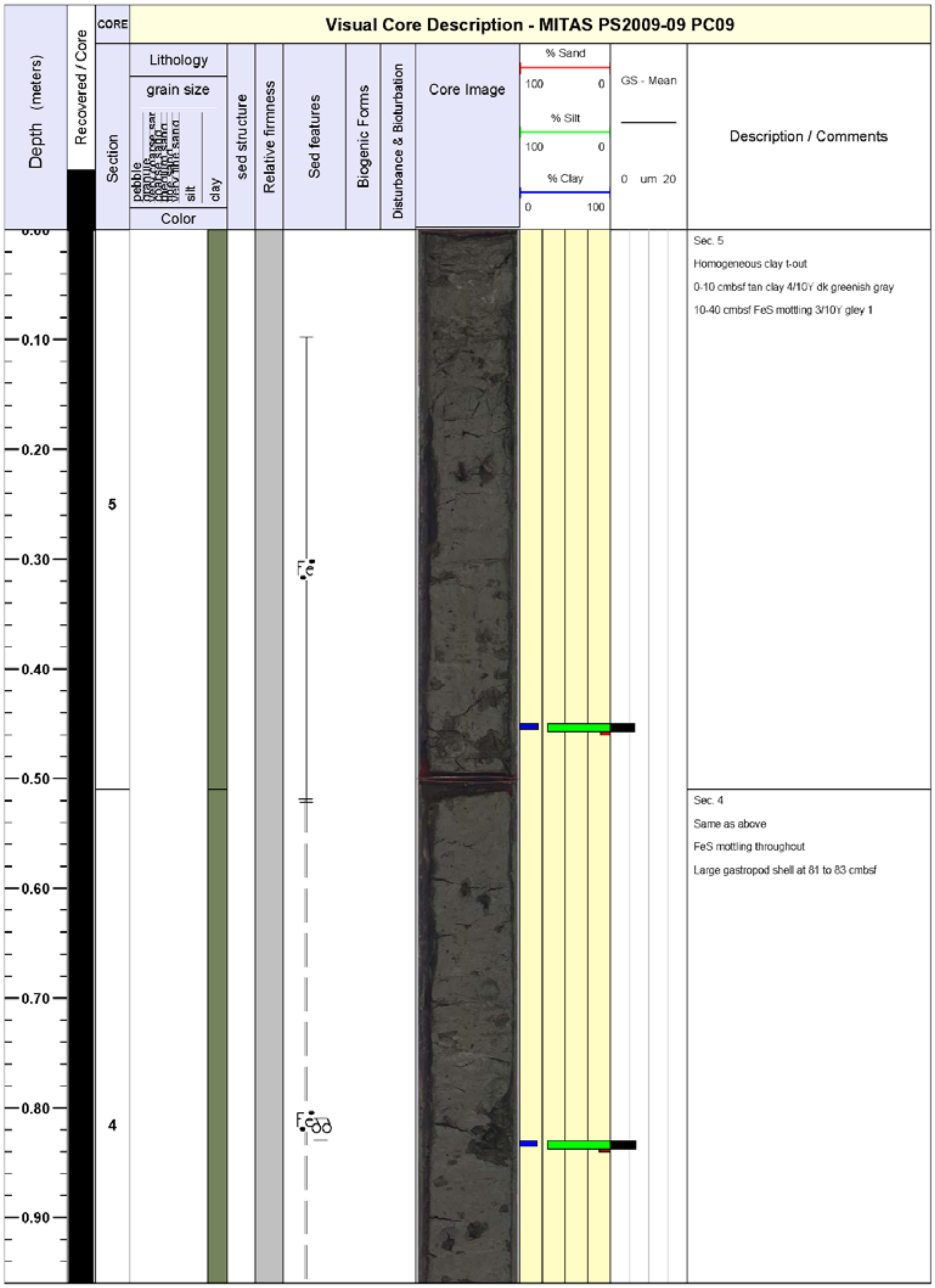

Visual Core Description - MITAS PS2009-09 PC08
CORE
Depth (meters)
Recovered / Core
Section
Lithology
grain size
silt
clay
Color
sed structure
Relative firmness
Sed features
Biogenic Forms
Disturbance & Bioturbation
Core Image
% Sand
100 0
% Silt
100 0
% Clay
0 100
GS - Mean
0 um 30
Description / Comments
0.00
0.10
0.20
0.30
0.40
0.50
0.60
0.70
0.80
0.90
3
FE
Sec. 3
Fine grained silt interbedded with coarse silt nterbeds.
0-10 cmbsf soft clay, Gley 1 4/10Y dark greenish gray
Silt beds, Gley 1 3/10Y @11-17 cmbsf, 20 cmbsf, 23-27 cmbsf, 28-33 cmbsf silt bed 36-39 cmbsf, 43-44 cmbsf, 49-52 cmbsf
FeS rich beds 63-89 cmbsf


1.00
1.10
1.20
1.30
1.40
1.50
1.60
1.70
1.80
1.90
2.00
2.10
PC 08
2
Fe
Wd
Fe
Sec. 2
Fine grained silt interbedded with coarse silt interbeds.
Abundant FeS rich beds throughout the entire section
Abundant organic rich laminae and beds towards base of section
Abundant silt beds and laminae throughout the section
Silt beds, Gley 1 3/10Y @108-109 cmbsf, 172 cmbsf, 174-175 cmbsf, 28-33 cmbsf silt bed 178 cmbsf, 183-186 cmbsf
Organic rich beds, dark; @ 182 cmbsf, 184 cmbsf, 185 cmbsf, 190 cmbsf, 193 cmbsf, 194 cmbsf, 195 cmbsf
118-120 cmbsf shell fragment
178 cmbsf, 183-186 cmbsf
Sec. 1
Gley 1 3/10Y very dark greenish gray
200-205 cmbsf fine laminations of FeS and silt
Silt beds @ 213-215 cmbsf, 221-223 cmbsf
Organic rich bed with woody debris @ 211-213 cmbsf

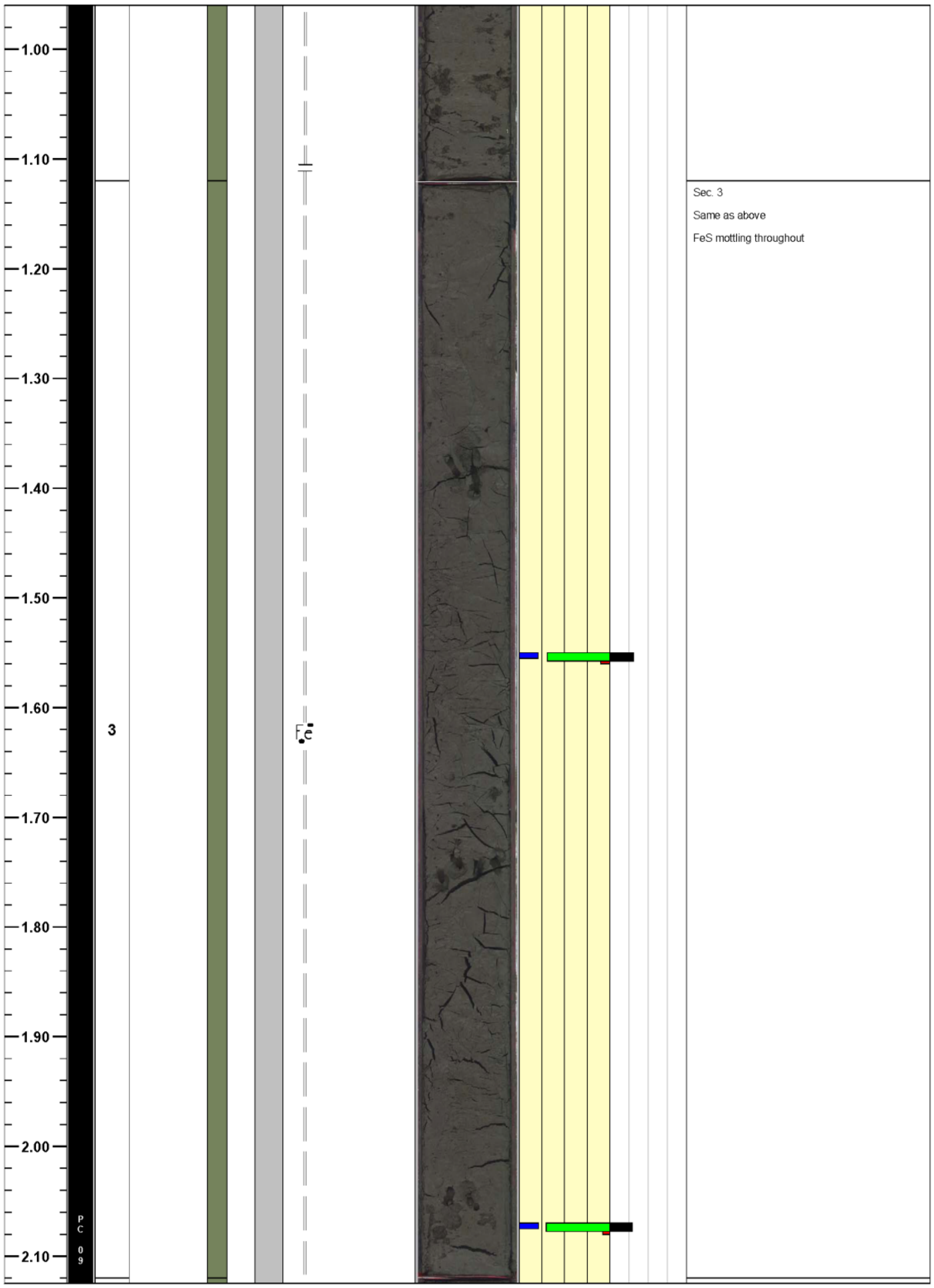

2.20
2.30
1
c
c

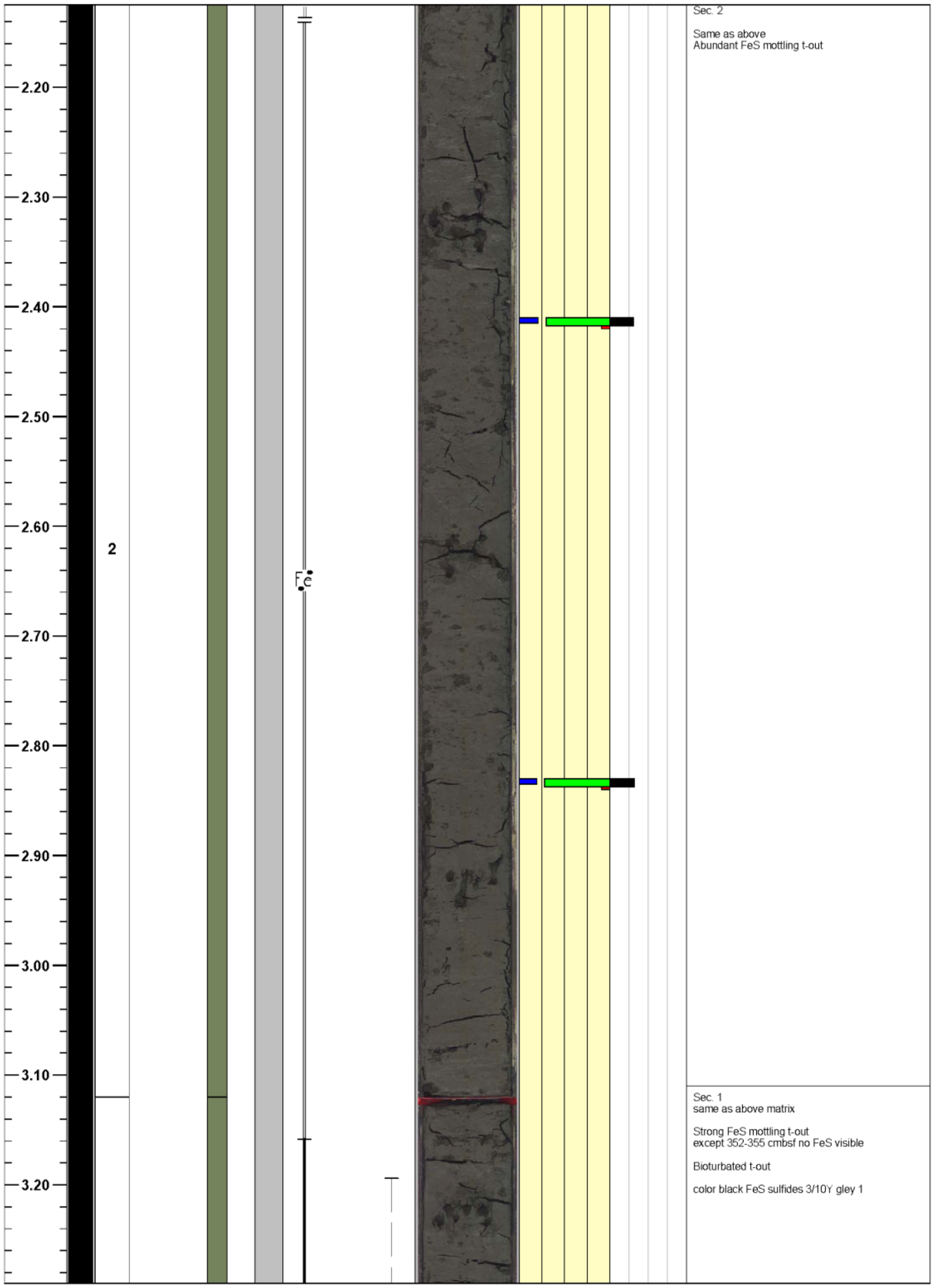


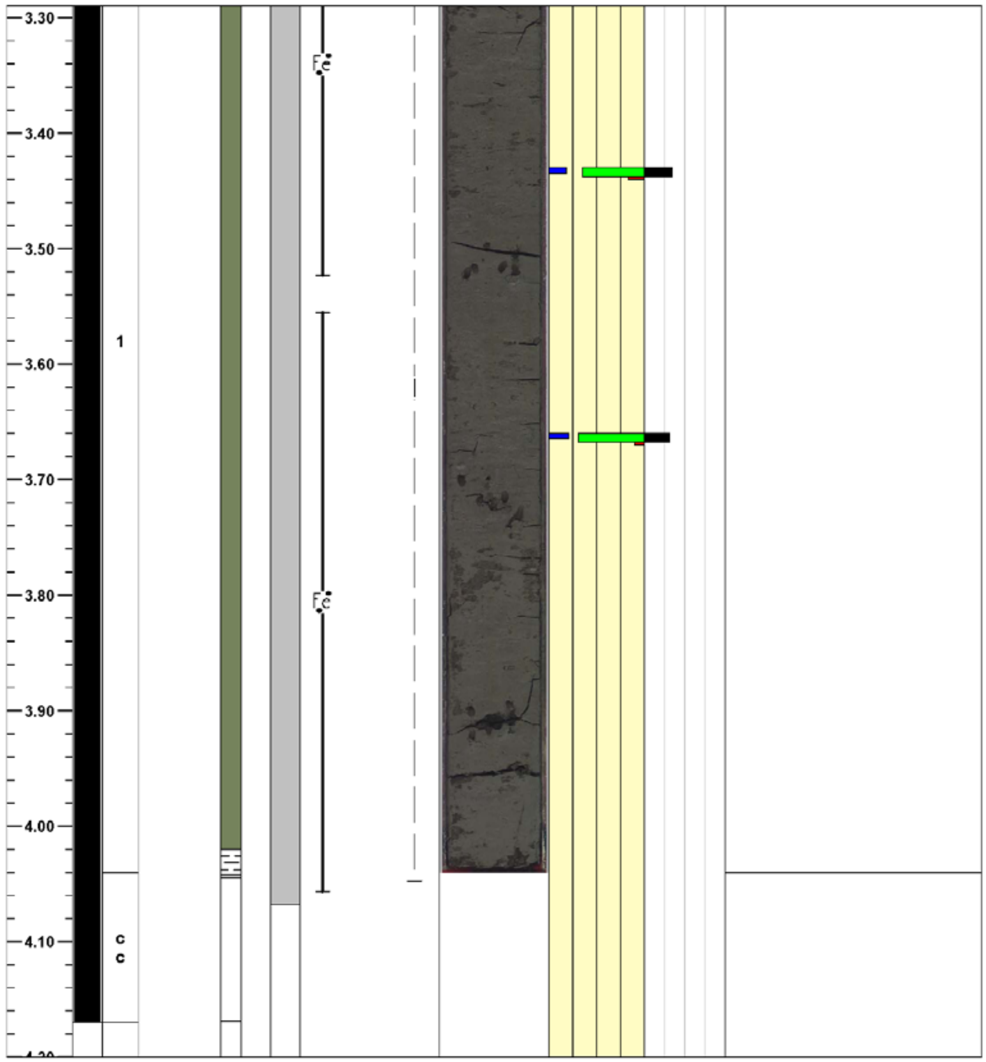
Visual Core Description - MITAS PS2009-09 PC09
Depth (meters)
Recovered / Core
CORE
Section
Lithology
grain size
pebble
silt
clay
Color
sed structure
Relative firmness
Sed features
Biogenic Forms
Disturbance & Bioturbation
Core Image
% Sand
100 0
% Silt
100 0
% Clay
0 100
GS - Mean
0 um 20
Description / Comments
1.00
2.00
3.00
4.00
5
4
3
2
1
c
c
Sec. 5
Homogeneous clay t-out
0-10 cmbsf tan clay 4/10Y dk greenish gray
10-40 cmbsf FeS mottling 3/10Y gley 1
Sec. 4
Same as above
FeS mottling throughout
Large gastropod shell at 81 to 83 cmbsf
Sec. 3
Same as above
FeS mottling throughout
Sec. 2
Same as above
Abundant FeS mottling t-out
Sec. 1
same as above matrix
Strong FeS mottling t-out
except 352-355 cmbsf no FeS visible
Bioturbated t-out
color black FeS sulfides 3/10Y gley 1

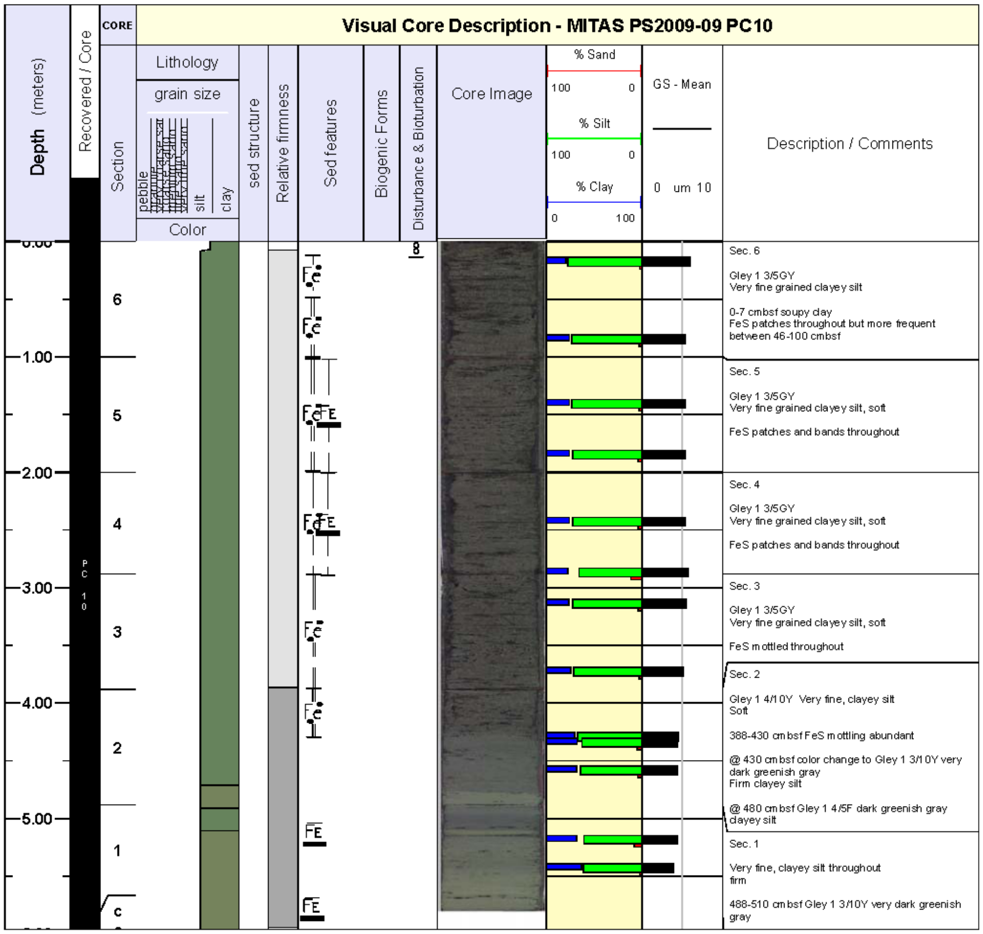


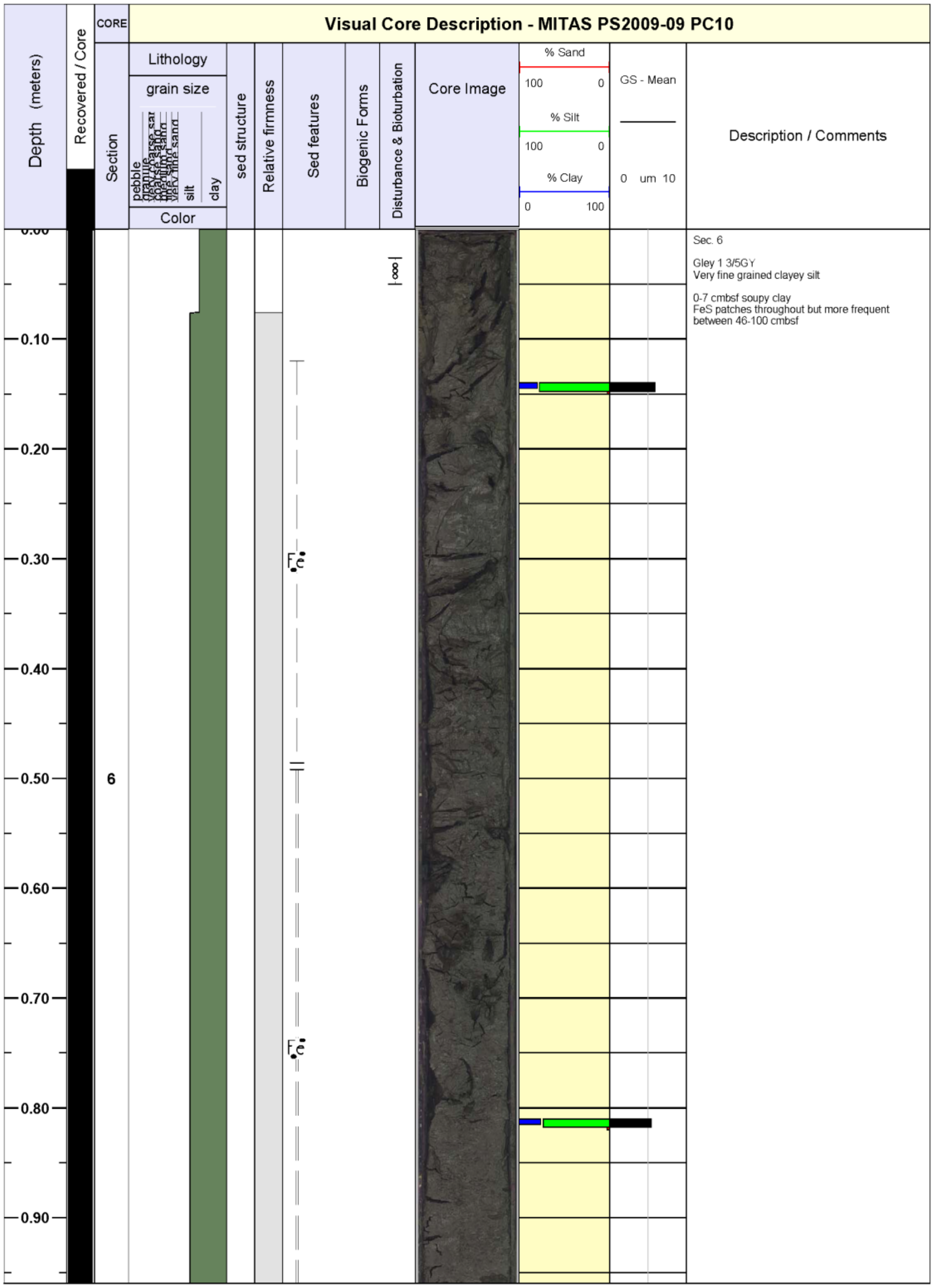
Visual Core Description - MITAS PS2009-09 PC09
CORE
Depth (meters)
Recovered / Core
Section
Lithology
grain size
silt
clay
Color
sed structure
Relative firmness
Sed features
Biogenic Forms
Disturbance & Bioturbation
Core Image
% Sand
100
0
% Silt
100
0
% Clay
0
100
GS - Mean
0 um 20
Description / Comments
0.10
0.20
0.30
0.40
0.50
0.60
0.70
0.80
0.90
5
4
Sec. 5
Homogeneous clay t-out
0-10 cmbsf tan clay 4/10Y dk greenish gray
10-40 cmbsf FeS mottling 3/10Y gley 1
Sec. 4
Same as above
FeS mottling throughout
Large gastropod shell at 81 to 83 cmbsf

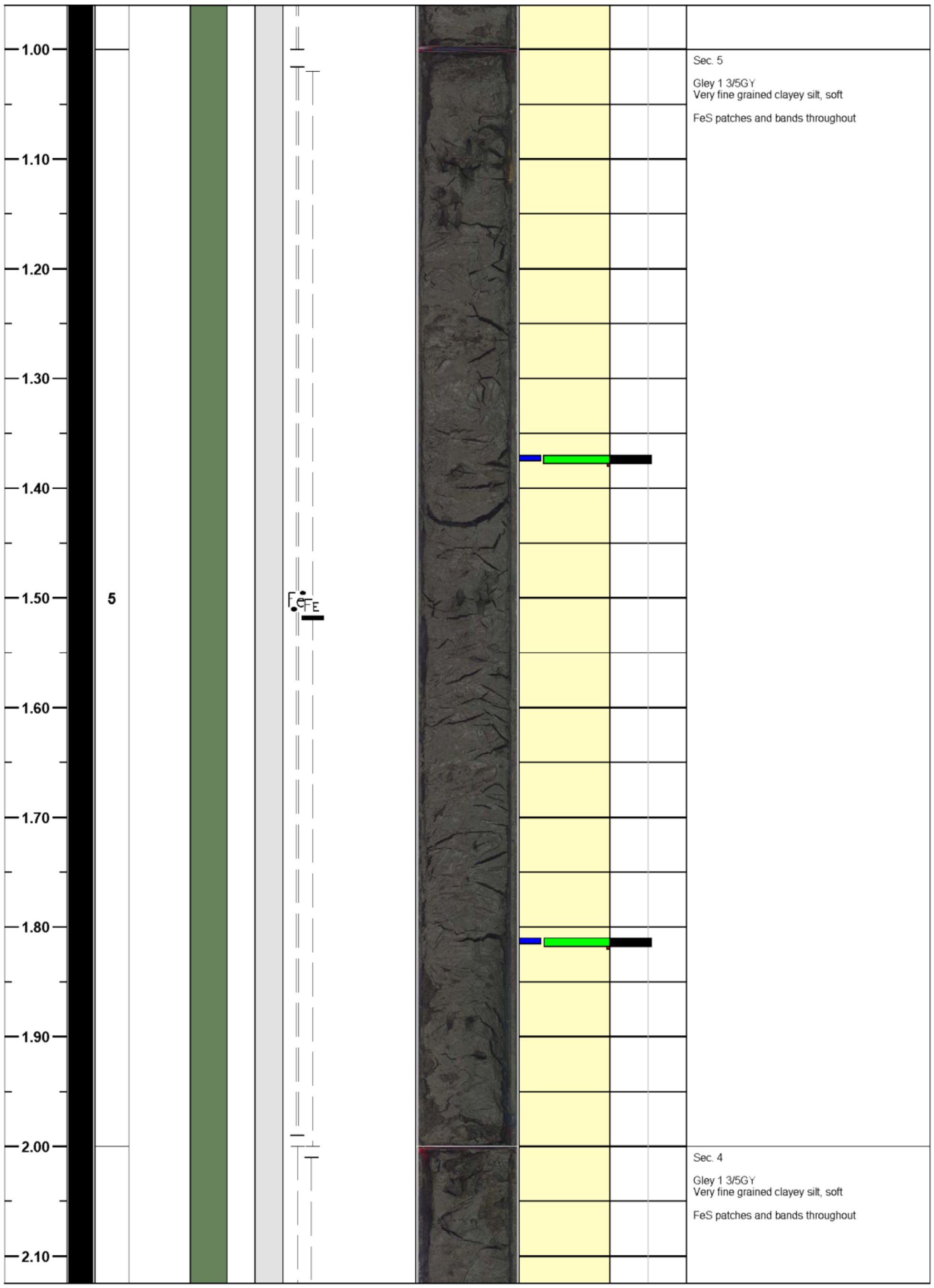

1.00
1.10
1.20
1.30
1.40
1.50
1.60
1.70
1.80
1.90
2.00
2.10
PC 09
3
Fe
Sec. 3
Same as above
FeS mottling throughout

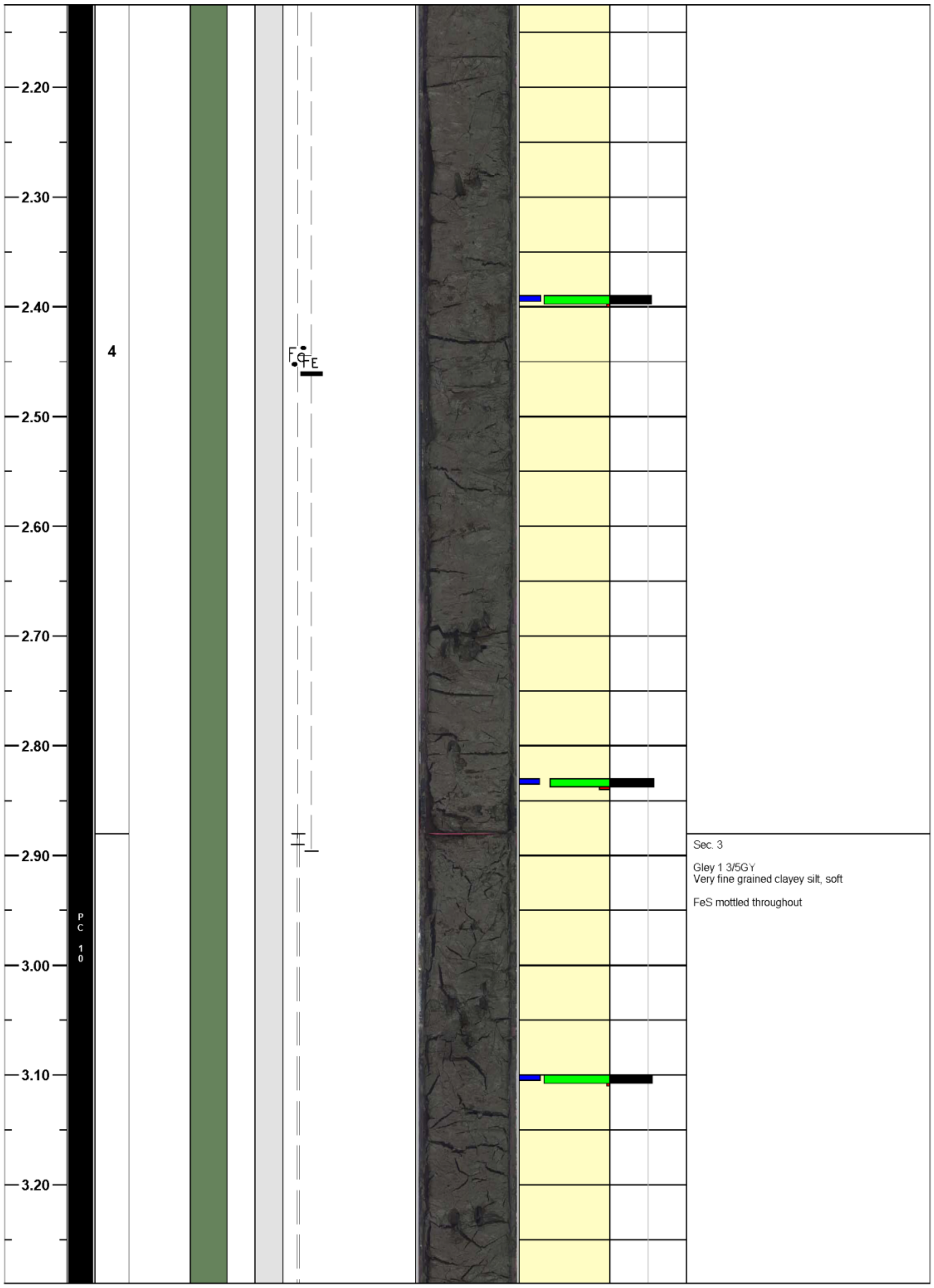

2.20
2.30
2.40
2.50
2.60
2.70
2.80
2.90
3.00
3.10
3.20
2
Fe
Sec. 2
Same as above
Abundant FeS mottling t-out
Sec. 1
same as above matrix
Strong FeS mottling t-out
except 352-355 cmbsf no FeS visible
Bioturbated t-out
color black FeS sulfides 3/10Y gley 1

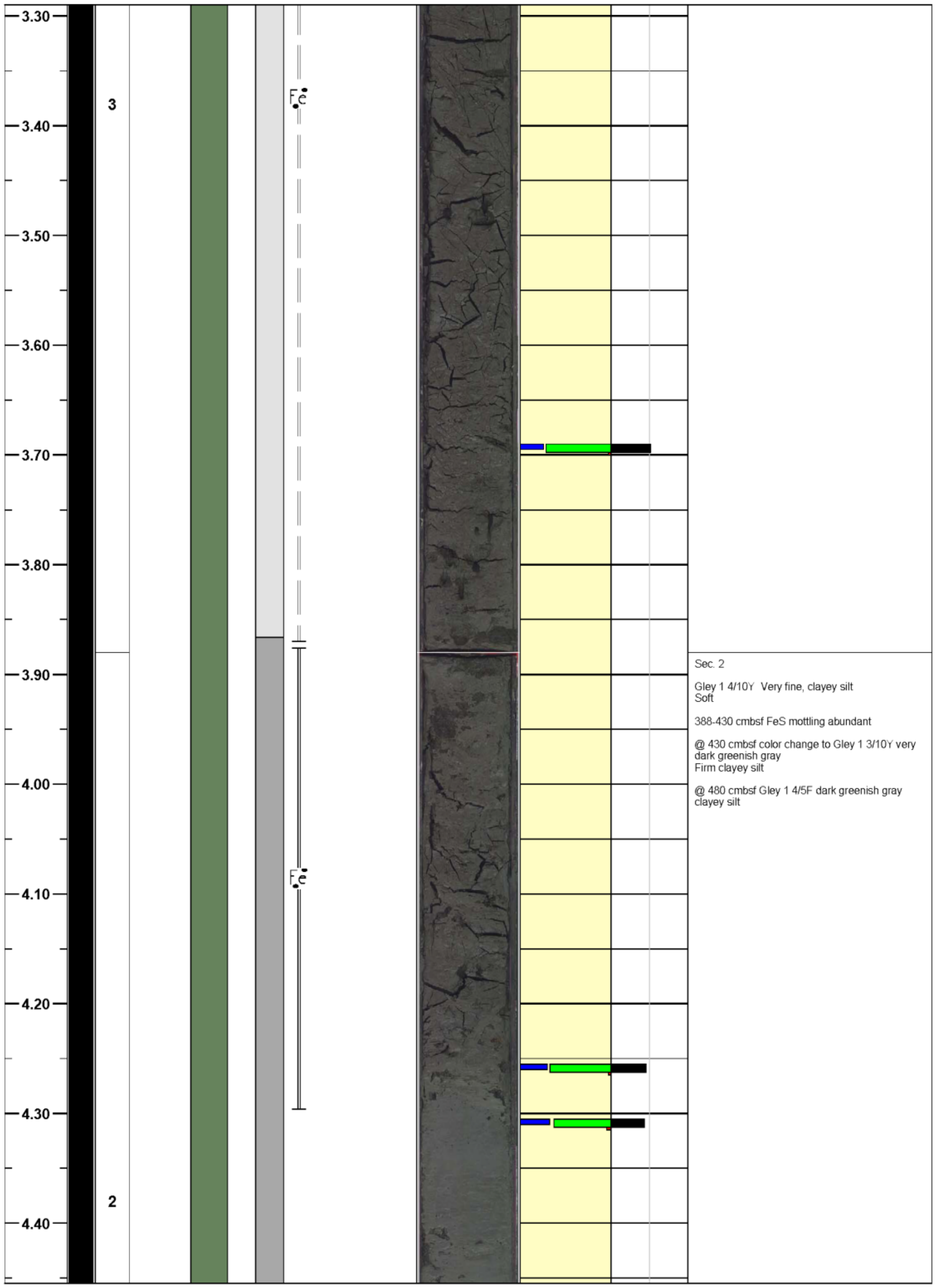

3.30
3.40
3.50
3.60
3.70
3.80
3.90
4.00
4.10
1
C
C

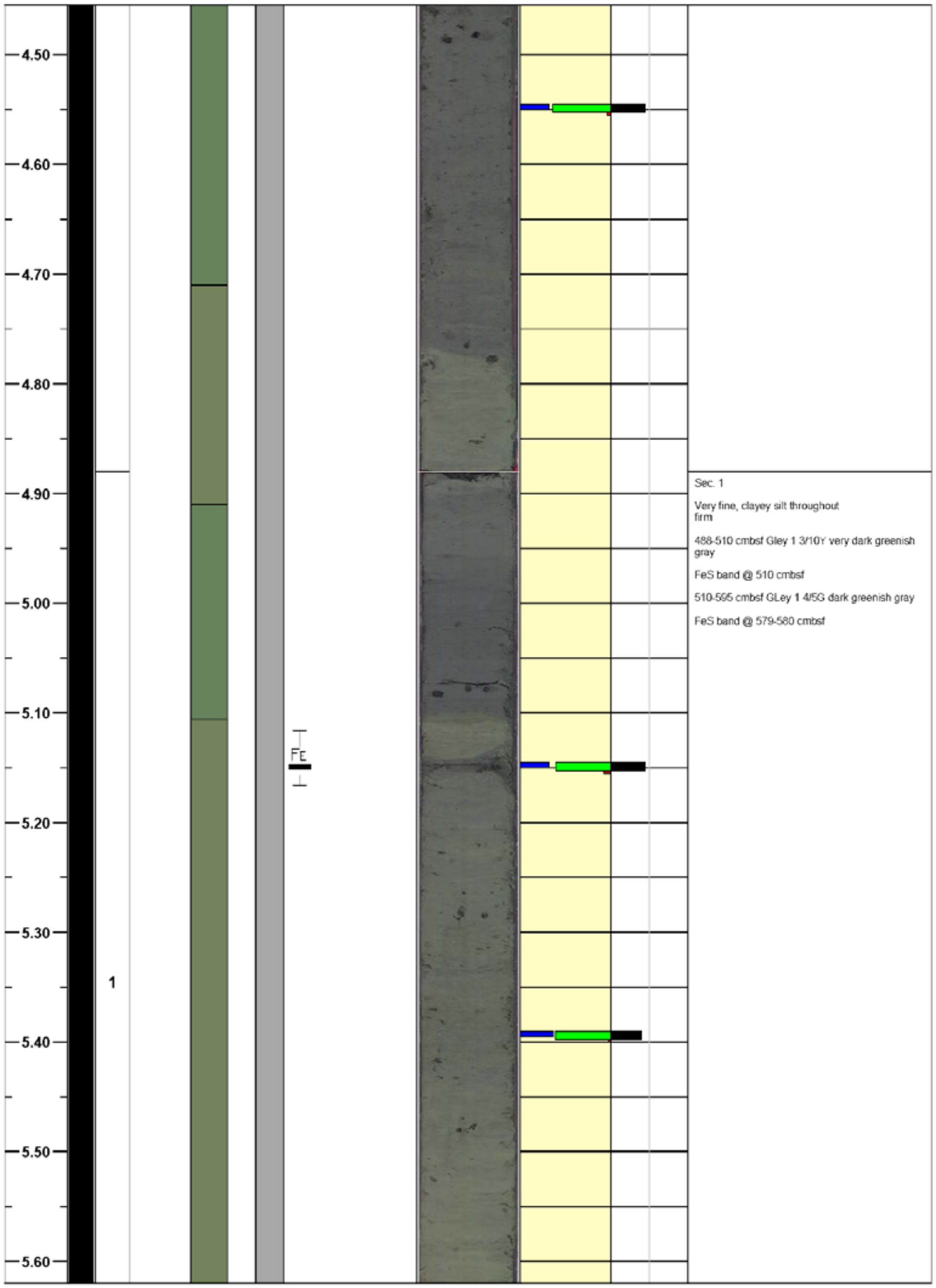

Visual Core Description - MITAS PS2009-09 PC10
CORE
Depth (meters)
Recovered / Core
Section
Lithology
grain size
pebble
silt
clay
Color
sed structure
Relative firmness
Sed features
Biogenic Forms
Disturbance & Bioturbation
Core Image
% Sand
100 0
% Silt
100 0
% Clay
0 100
GS - Mean
0 um 10
Description / Comments
1.00
2.00
3.00
4.00
5.00
6
5
4
3
2
1
c
PC 10
Sec. 6
Gley 1 3/5GY
Very fine grained clayey silt
0-7 cmbsf soupy clay
FeS patches throughout but more frequent between 46-100 cmbsf
Sec. 5
Gley 1 3/5GY
Very fine grained clayey silt, soft
FeS patches and bands throughout
Sec. 4
Gley 1 3/5GY
Very fine grained clayey silt, soft
FeS patches and bands throughout
Sec. 3
Gley 1 3/5GY
Very fine grained clayey silt, soft
FeS mottled throughout
Sec. 2
Gley 1 4/10Y Very fine, clayey silt
Soft
388-430 cmbsf FeS mottling abundant
@ 430 cmbsf color change to Gley 1 3/10Y very dark greenish gray
Firm clayey silt
@ 480 cmbsf Gley 1 4/5F dark greenish gray clayey silt
Sec. 1
Very fine, clayey silt throughout
firm
488-510 cmbsf Gley 1 3/10Y very dark greenish gray


Visual Core Description - MITAS PS2009-09 PC10
Depth (meters)
Recovered / Core
CORE
Section
Lithology
grain size
pebble
granule
silt
clay
Color
sed structure
Relative firmness
Sed features
Biogenic Forms
Disturbance & Bioturbation
Core Image
% Sand
% Silt
% Clay
GS - Mean
0 um 10
Description / Comments
0.10
0.20
0.30
0.40
0.50
0.60
0.70
0.80
0.90
6
Fe
Sec. 6
Gley 1 3/5GY
Very fine grained clayey silt
0-7 cmbsf soupy clay
FeS patches throughout but more frequent between 46-100 cmbsf

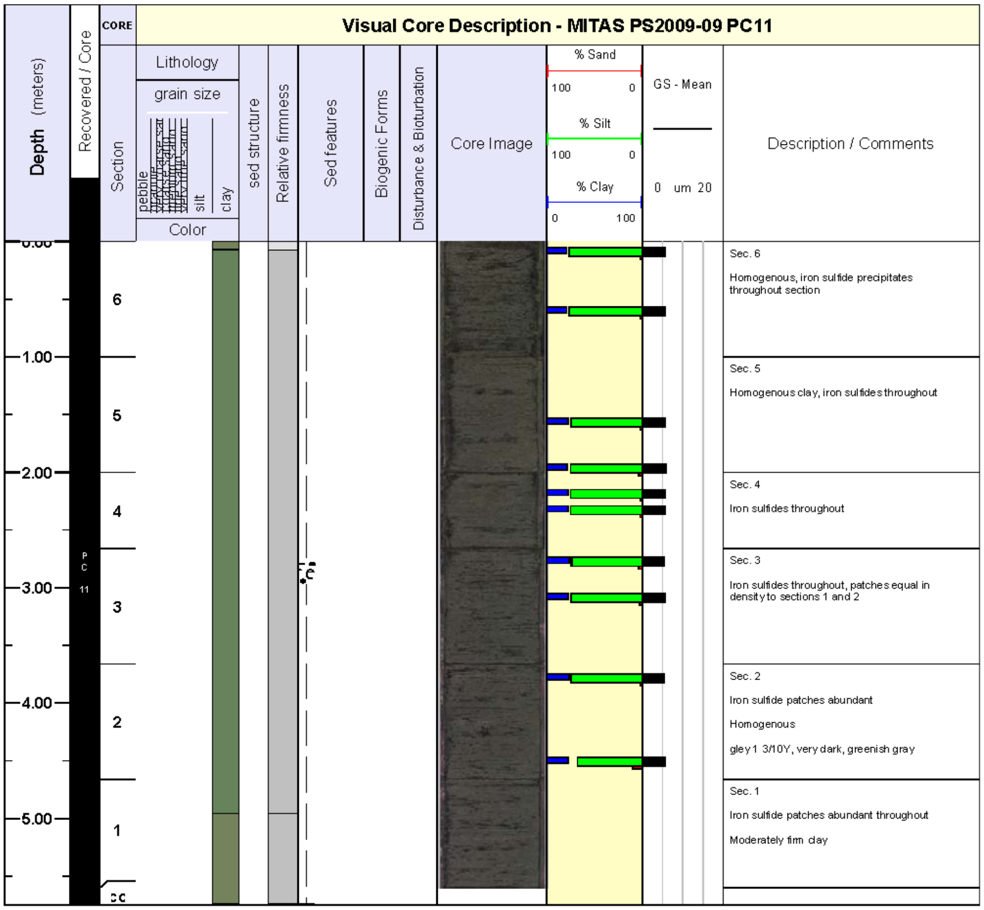

1.00
1.10
1.20
1.30
1.40
1.50
1.60
1.70
1.80
1.90
2.00
2.10
5
Sec. 5
Gley 1 3/5GY
Very fine grained clayey silt, soft
FeS patches and bands throughout
Sec. 4
Gley 1 3/5GY
Very fine grained clayey silt, soft
FeS patches and bands throughout


2.20
2.30
2.40
2.50
2.60
2.70
2.80
2.90
3.00
3.10
3.20
4
PC 10
Sec. 3
Gley 1 3/5GY
Very fine grained clayey silt, soft
FeS mottled throughout

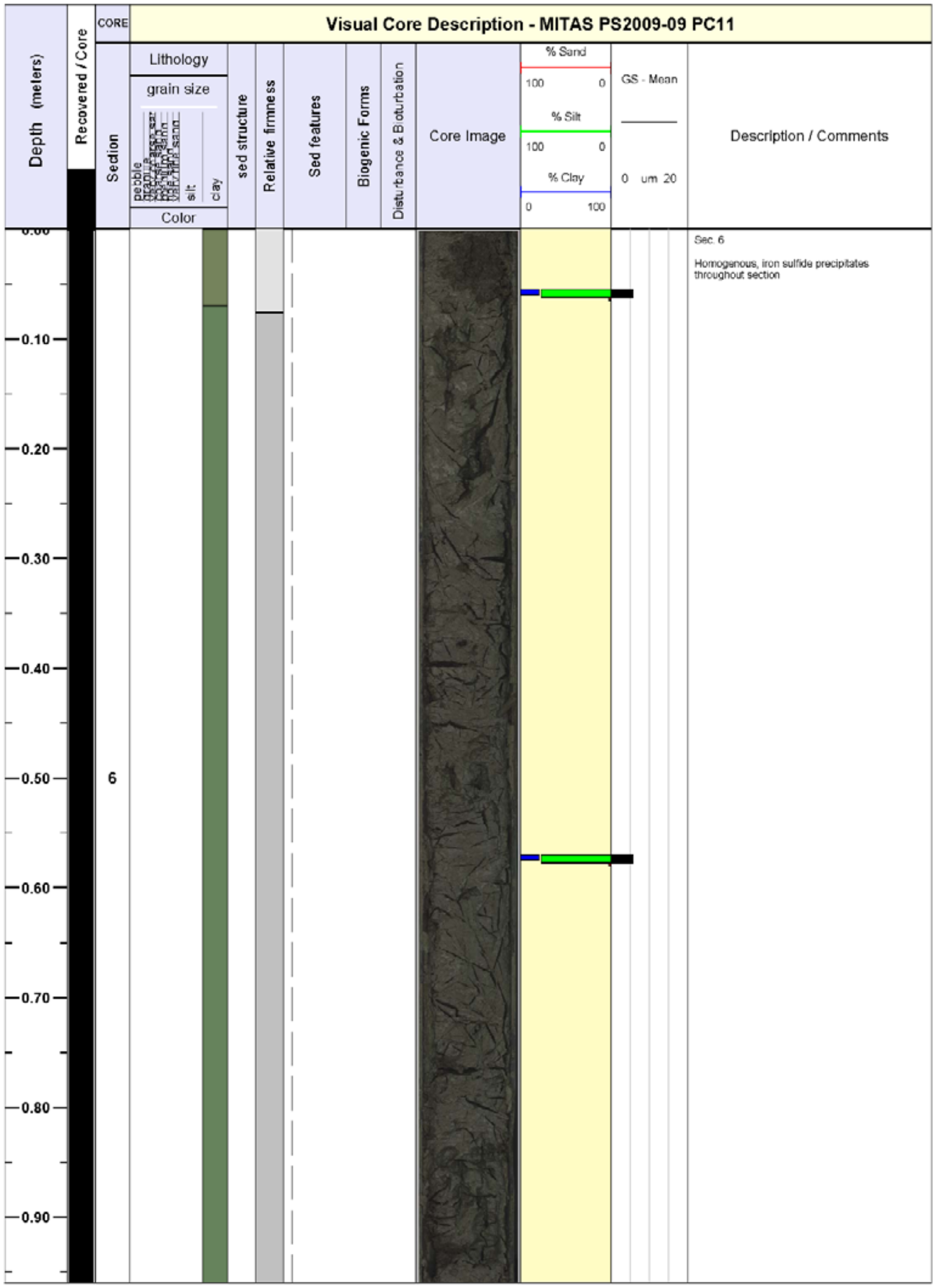

3.30
3.40
3.50
3.60
3.70
3.80
3.90
4.00
4.10
4.20
4.30
4.40
3
2
Fe
Fe
Sec. 2
Gley 1 4/10Y Very fine, clayey silt
Soft
388-430 cmbsf FeS mottling abundant
@ 430 cmbsf color change to Gley 1 3/10Y very dark greenish gray
Firm clayey silt
@ 480 cmbsf Gley 1 4/5F dark greenish gray clayey silt

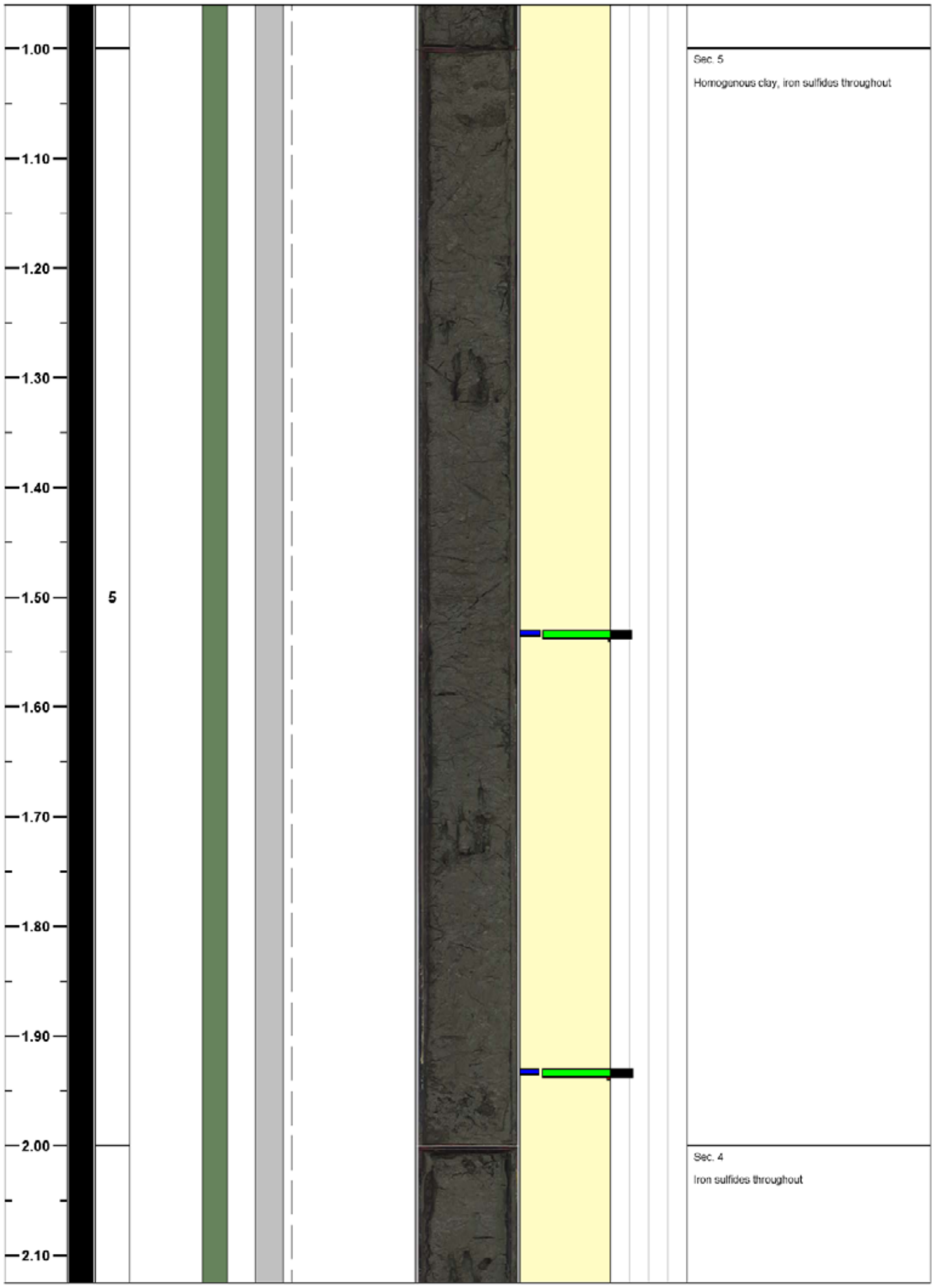

4.50
4.60
4.70
4.80
4.90
5.00
5.10
5.20
5.30
5.40
5.50
5.60
1
FE
Sec. 1
Very fine, clayey silt throughout
firm
488-510 cmbsf Gley 1 3/10Y very dark greenish gray
FeS band @ 510 cmbsf
510-595 cmbsf GLey 1 4/5G dark greenish gray
FeS band @ 579-580 cmbsf

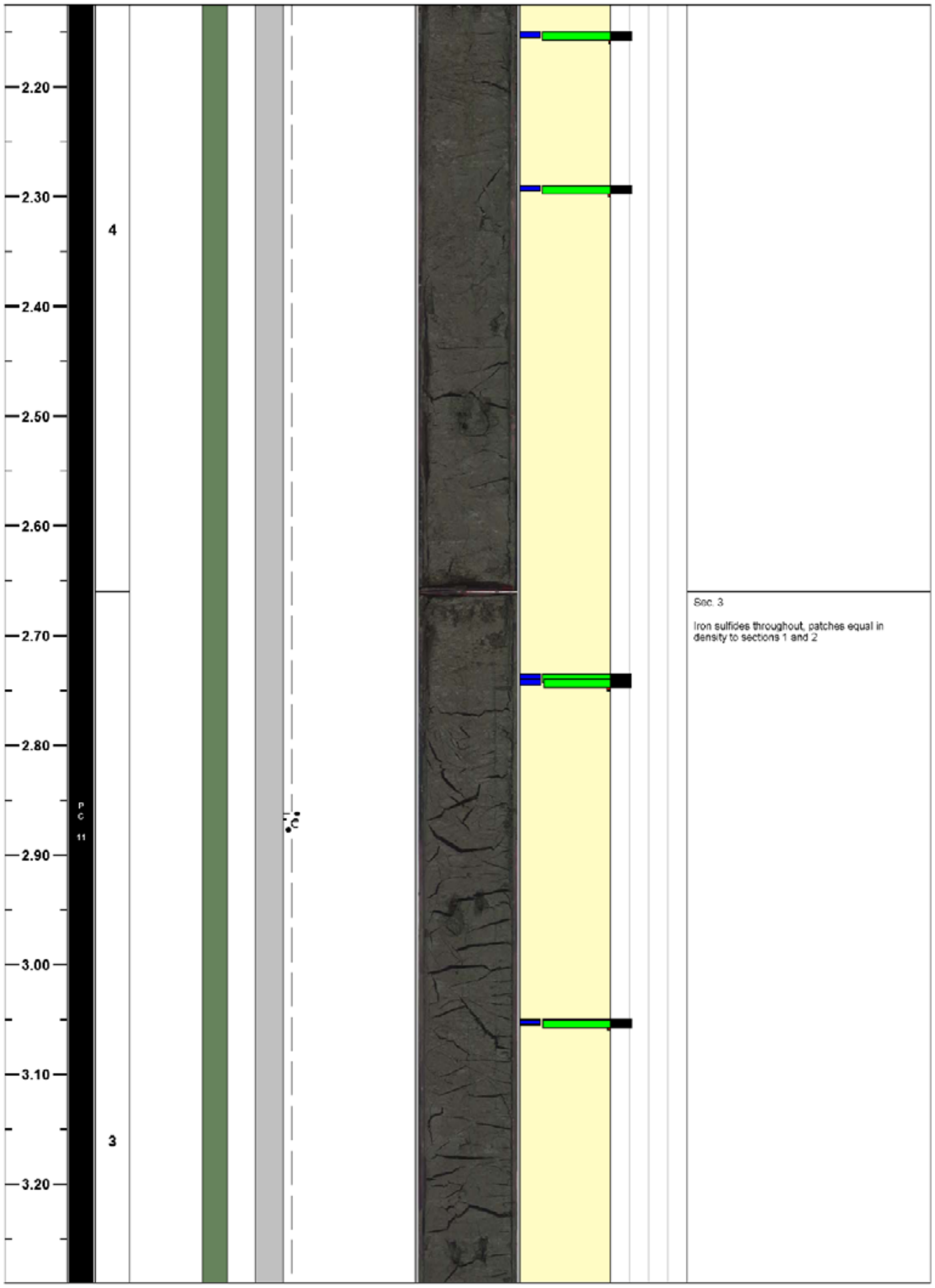

5.70
5.80
5.90
c
c
FE

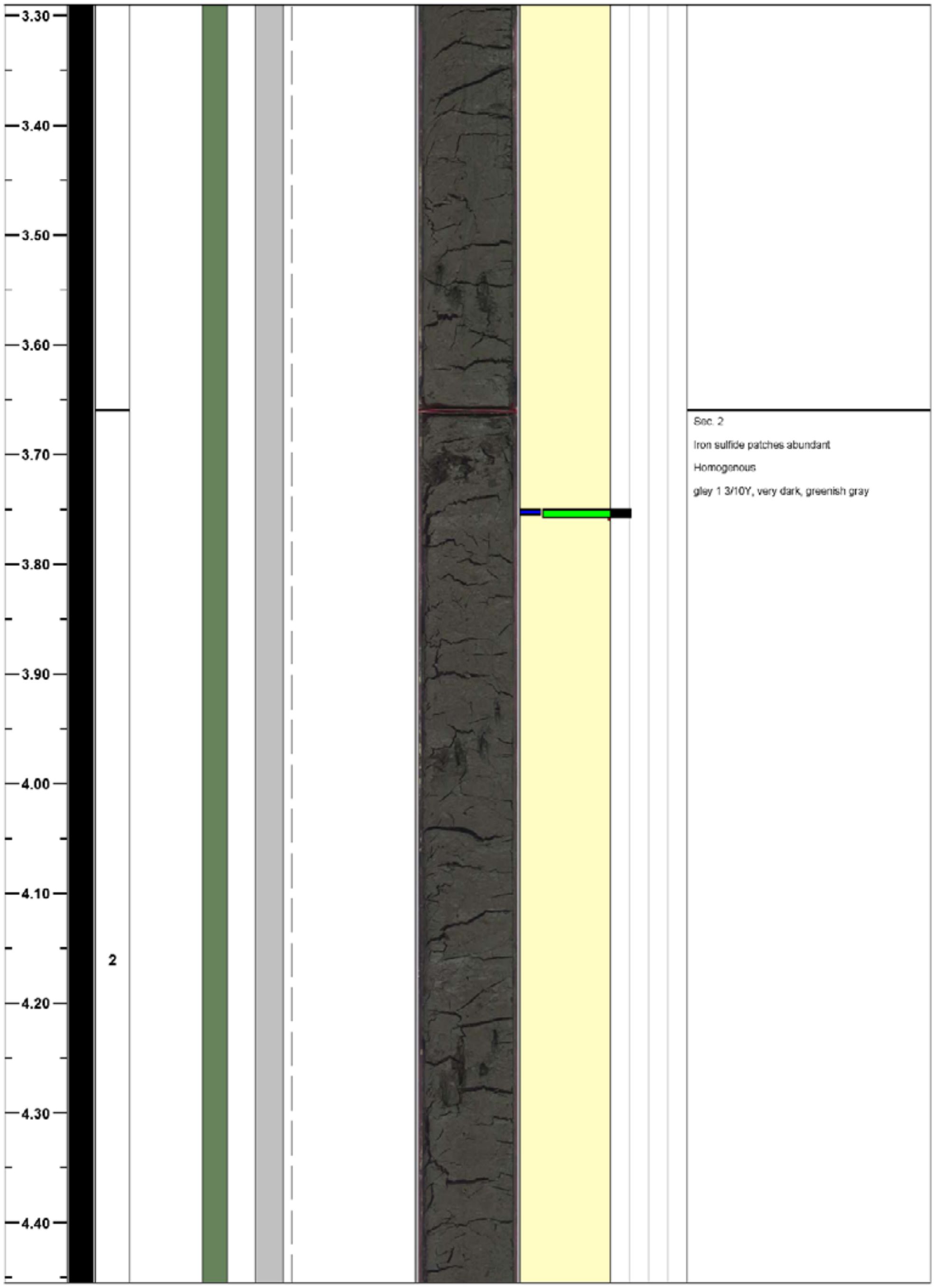


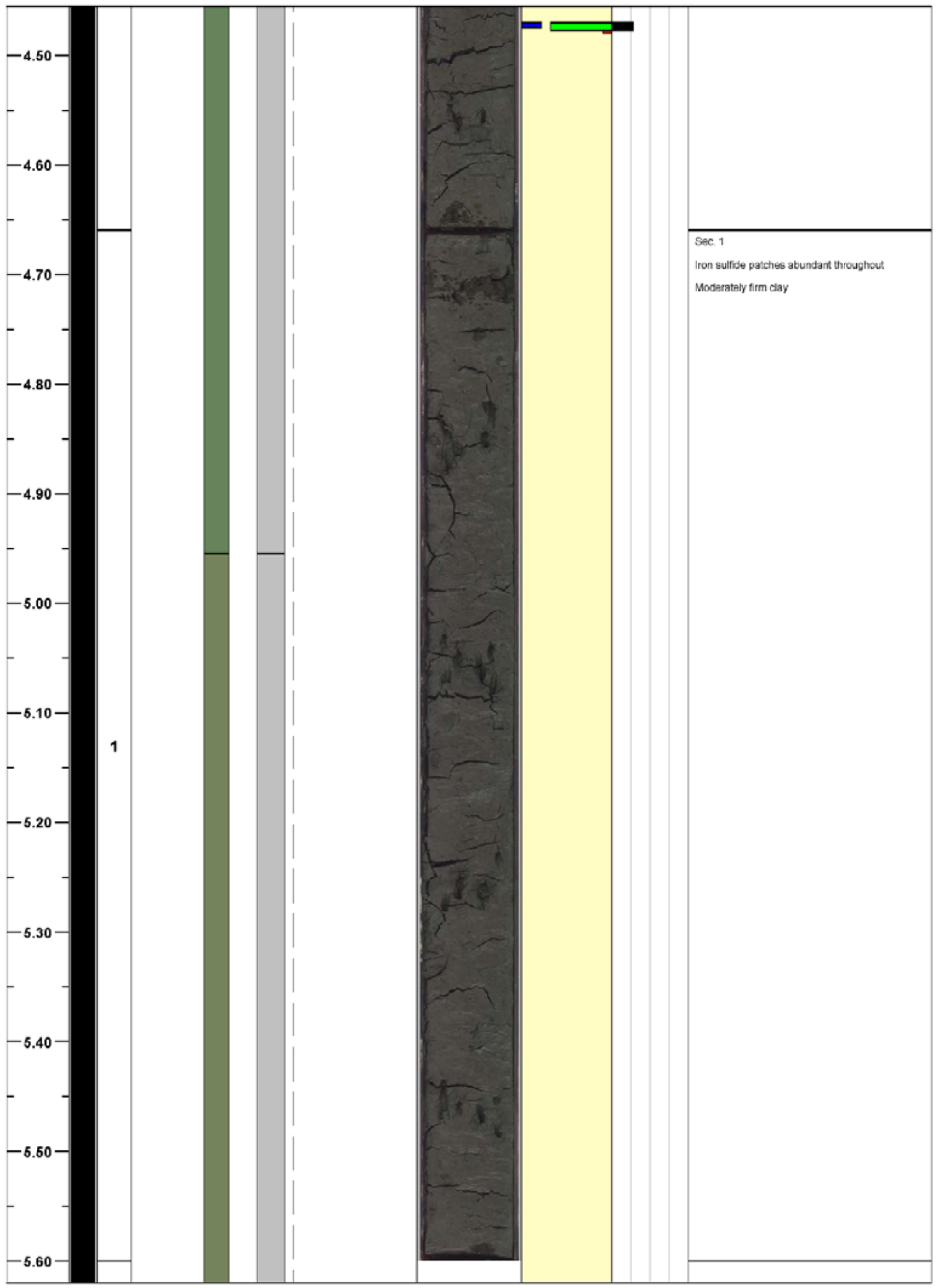
Visual Core Description - MITAS PS2009-09 PC11
Depth (meters)
Recovered / Core
CORE
Section
Lithology
grain size
Color
sed structure
Relative firmness
Sed features
Biogenic Forms
Disturbance & Bioturbation
Core Image
% Sand
% Silt
% Clay
GS - Mean
0 um 20
Description / Comments
Sec. 6
Homogenous, iron sulfide precipitates throughout section
Sec. 5
Homogenous clay, iron sulfides throughout
Sec. 4
Iron sulfides throughout
Sec. 3
Iron sulfides throughout, patches equal in density to sections 1 and 2
Sec. 2
Iron sulfide patches abundant
Homogenous
gley 1 3/10Y, very dark, greenish gray
Sec. 1
Iron sulfide patches abundant throughout
Moderately firm clay

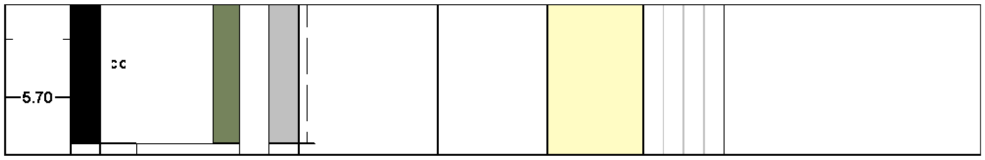

Visual Core Description - MITAS PS2009-09 PC11
Depth (meters)
Recovered / Core
CORE
Section
Lithology
grain size
Color
sed structure
Relative firmness
Sed features
Biogenic Forms
Disturbance & Bioturbation
Core Image
% Sand
% Silt
% Clay
GS - Mean
Description / Comments
0.10
0.20
0.30
0.40
0.50
0.60
0.70
0.80
0.90
6
Sec. 6
Homogenous, iron sulfide precipitates throughout section

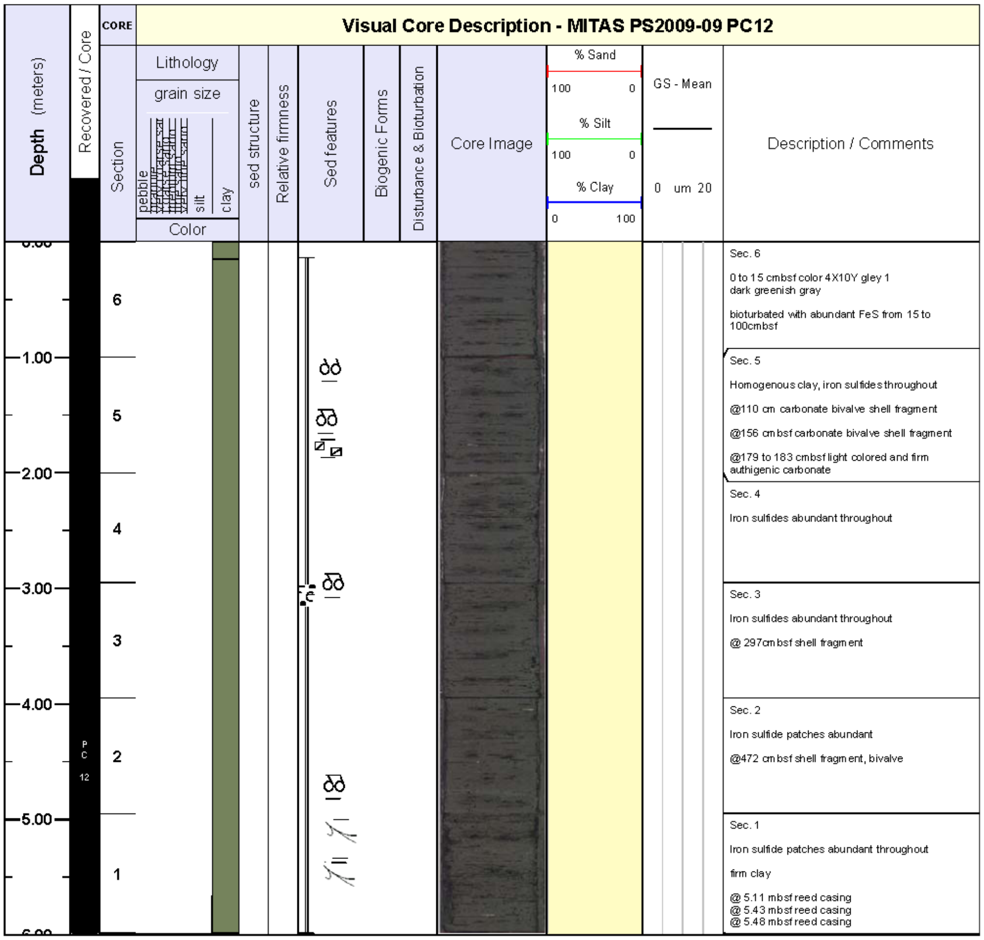

1.00
1.10
1.20
1.30
1.40
1.50
1.60
1.70
1.80
1.90
2.00
2.10
5
Sec. 5
Homogenous clay, iron sulfides throughout
Sec. 4
Iron sulfides throughout

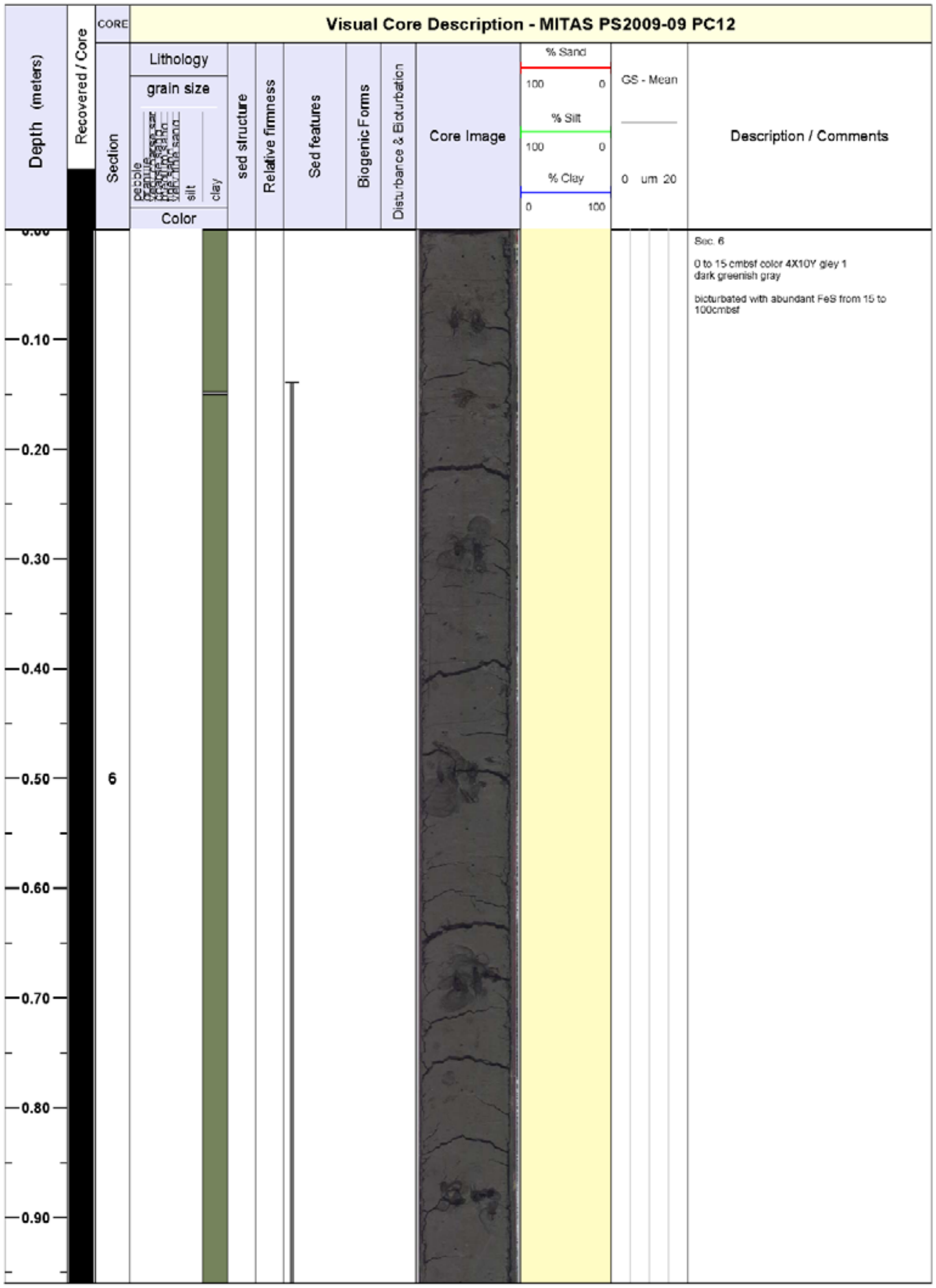

2.20
2.30
2.40
2.50
2.60
2.70
2.80
2.90
3.00
3.10
3.20
4
3
P
C
11
Sec. 3
Iron sulfides throughout, patches equal in density to sections 1 and 2


3.30
3.40
3.50
3.60
3.70
3.80
3.90
4.00
4.10
4.20
4.30
4.40
2
Sec. 2
Iron sulfide patches abundant
Homogenous
gley 1 3/10Y, very dark, greenish gray

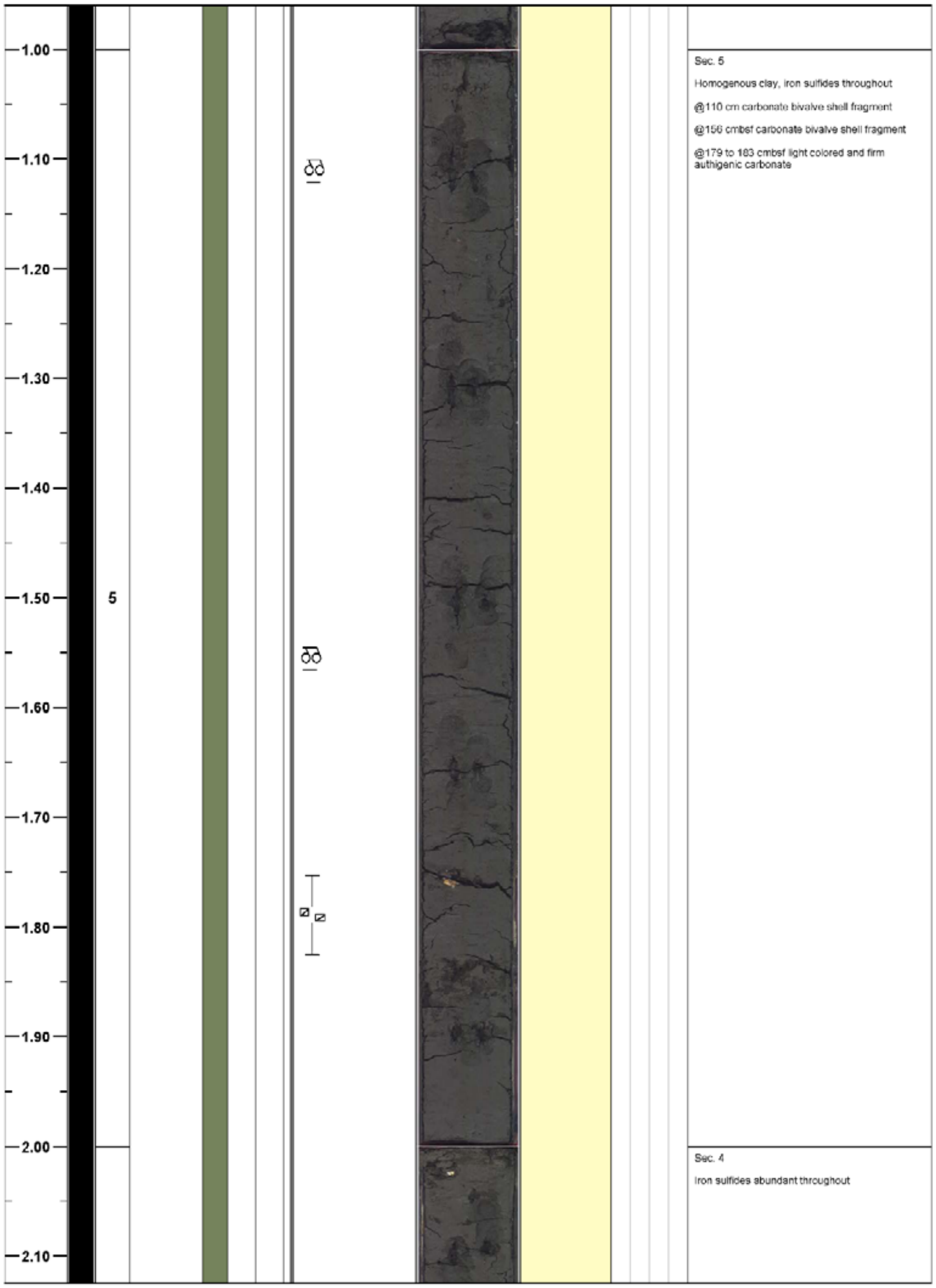

4.50
4.60
4.70
4.80
4.90
5.00
5.10
5.20
5.30
5.40
5.50
5.60
1
Sec. 1
Iron sulfide patches abundant throughout
Moderately firm clay

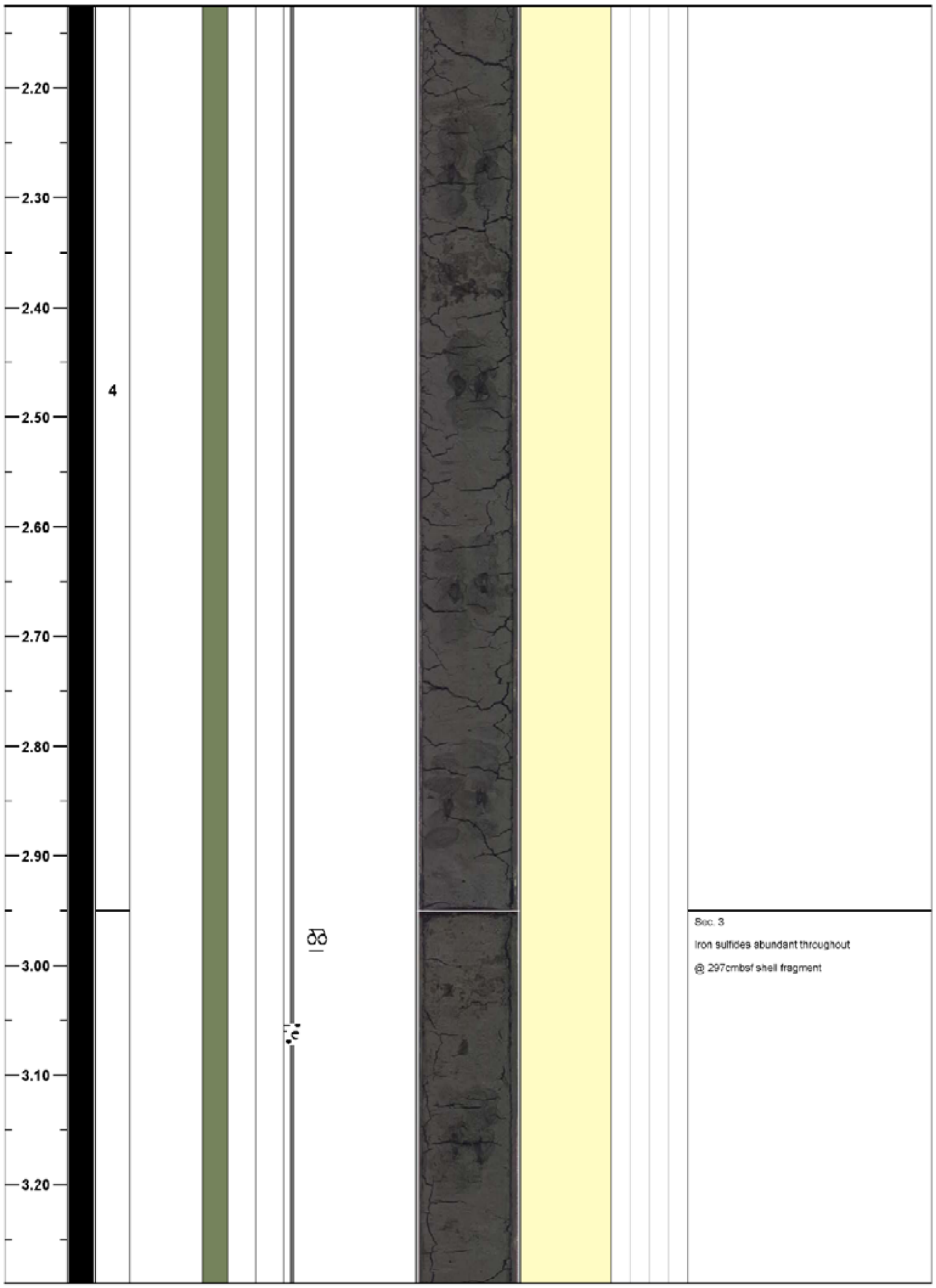

5.70

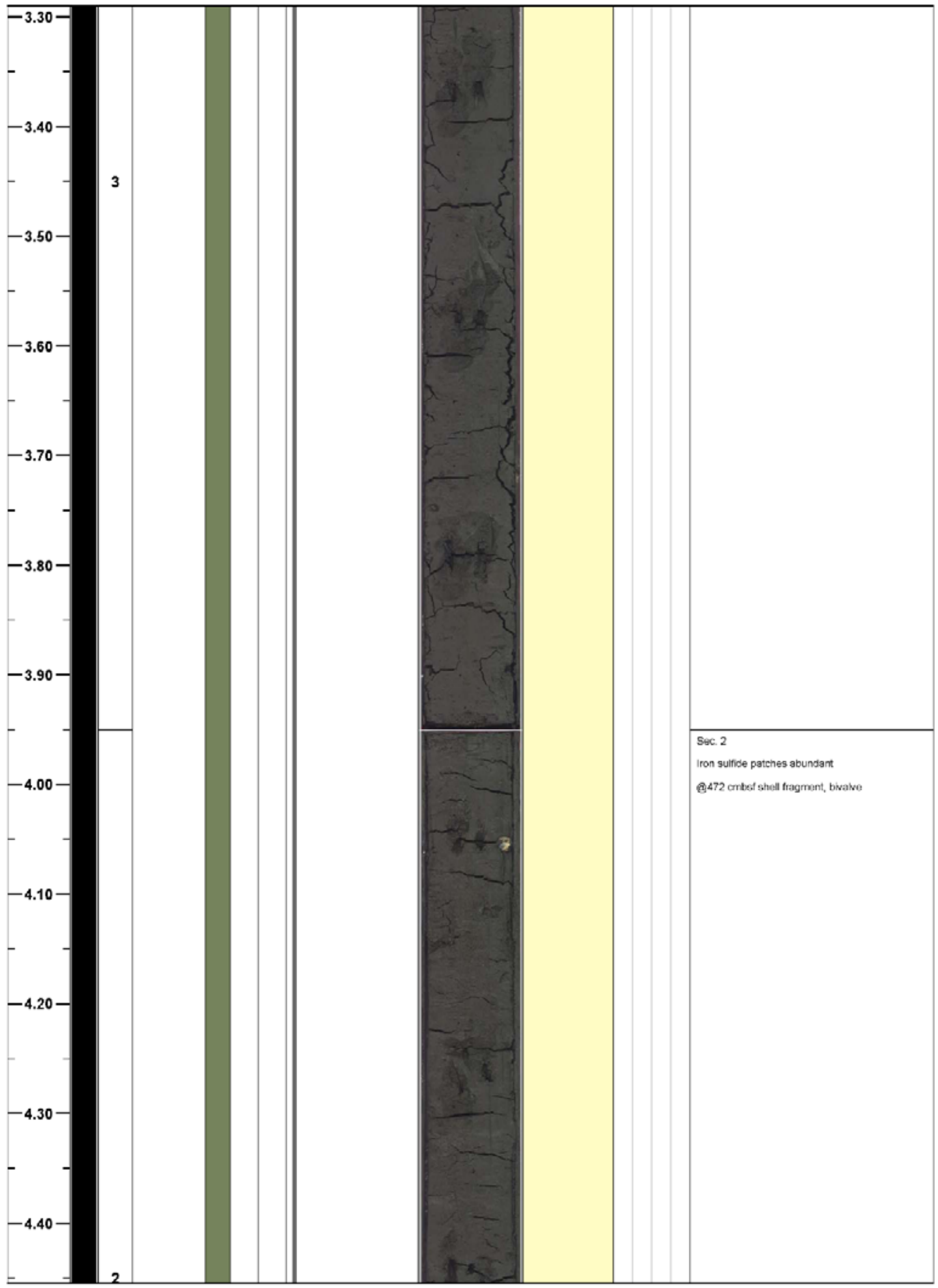

CORE
Visual Core Description - MITAS PS2009-09 PC12
Depth (meters)
Recovered / Core
Section
Lithology
grain size
pebble
silt
clay
Color
sed structure
Relative firmness
Sed features
Biogenic Forms
Disturbance & Bioturbation
Core Image
% Sand
100 0
% Silt
100 0
% Clay
0 100
GS - Mean
0 um 20
Description / Comments
1.00
2.00
3.00
4.00
5.00
6
5
4
3
2
1
PC 12
Sec. 6
0 to 15 cmbsf color 4X10Y gley 1
dark greenish gray
bioturbated with abundant FeS from 15 to 100cmbsf
Sec. 5
Homogenous clay, iron sulfides throughout
@110 cm carbonate bivalve shell fragment
@156 cmbsf carbonate bivalve shell fragment
@179 to 183 cmbsf light colored and firm authigenic carbonate
Sec. 4
Iron sulfides abundant throughout
Sec. 3
Iron sulfides abundant throughout
@ 297cmbsf shell fragment
Sec. 2
Iron sulfide patches abundant
@472 cmbsf shell fragment, bivalve
Sec. 1
Iron sulfide patches abundant throughout
firm clay
@ 5.11 mbsf reed casing
@ 5.43 mbsf reed casing
@ 5.48 mbsf reed casing

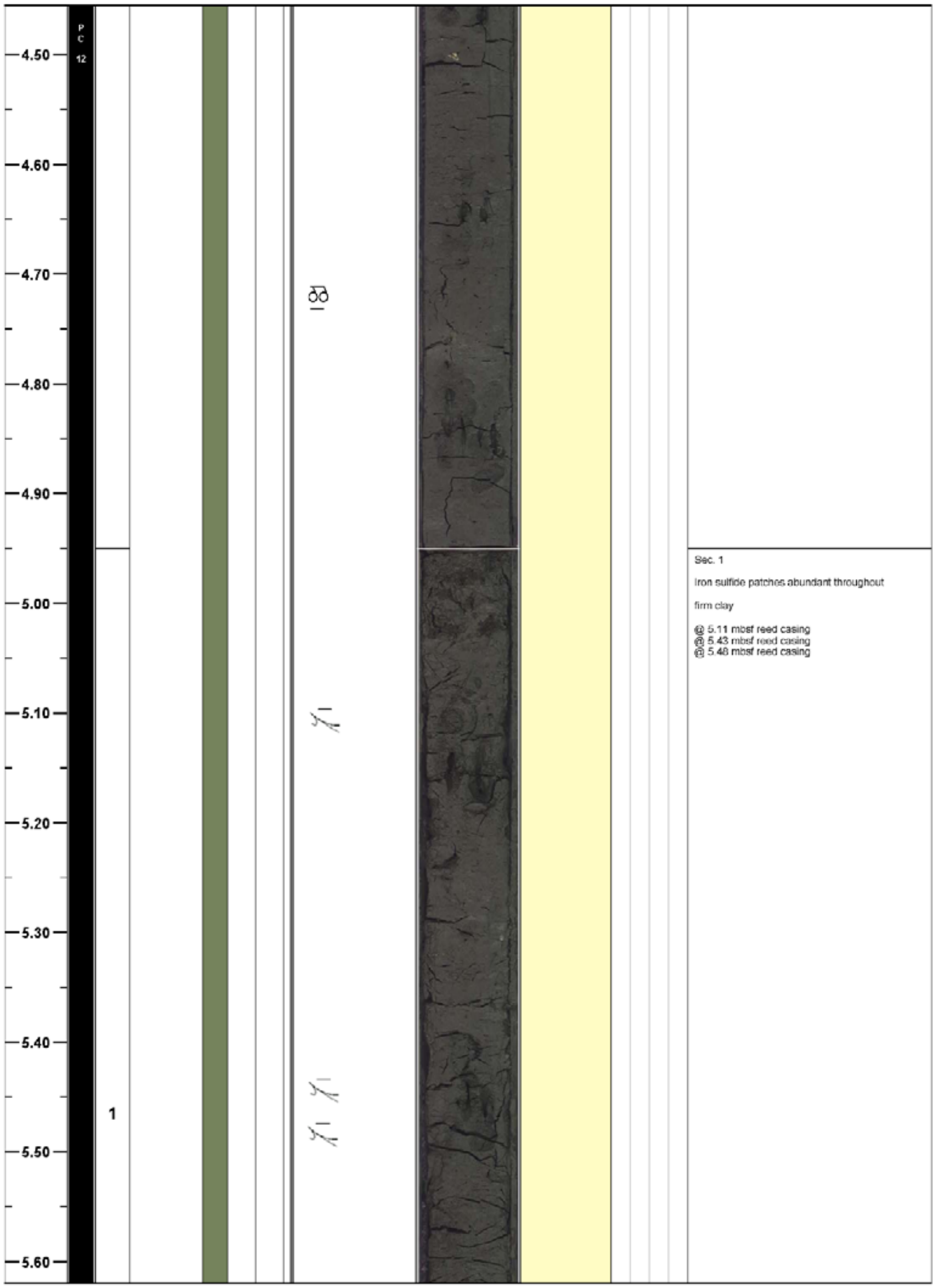


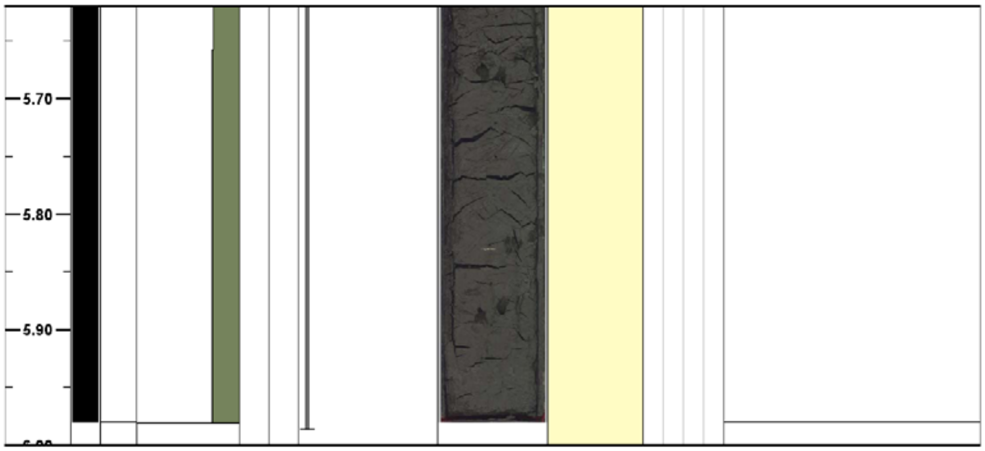
Visual Core Description - MITAS PS2009-09 PC12
CORE
Depth (meters)
Recovered / Core
Section
Lithology
grain size
silt
clay
Color
sed structure
Relative firmness
Sed features
Biogenic Forms
Disturbance & Bioturbation
Core Image
% Sand
100 0
% Silt
100 0
% Clay
0 100
GS - Mean
0 um 20
Description / Comments
0.10
0.20
0.30
0.40
0.50
0.60
0.70
0.80
0.90
6
Sec. 6
0 to 15 cmbsf color 4X10Y gley 1
dark greenish gray
bioturbated with abundant FeS from 15 to
100cmbsf

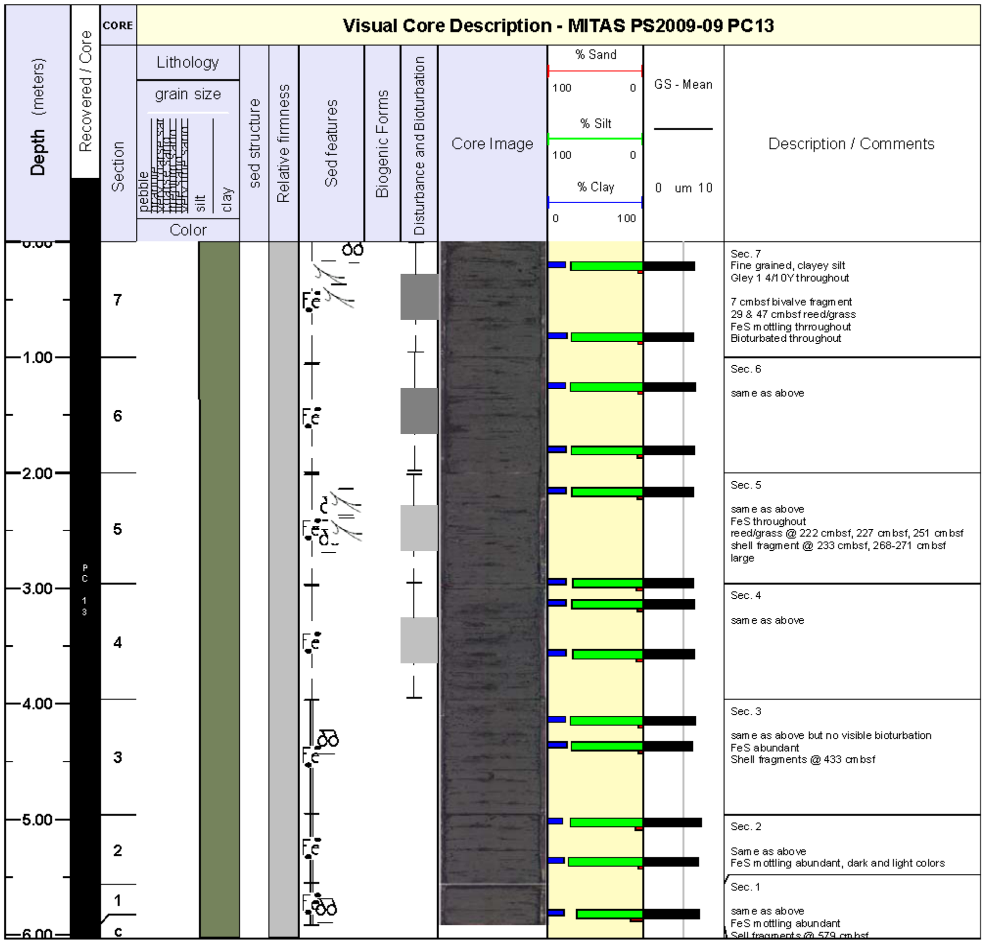

1.00
1.10
1.20
1.30
1.40
1.50
1.60
1.70
1.80
1.90
2.00
2.10
5
Sec. 5
Homogenous clay, iron sulfides throughout
@110 cm carbonate bivalve shell fragment
@156 cmbsf carbonate bivalve shell fragment
@179 to 183 cmbsf light colored and firm authigenic carbonate
Sec. 4
Iron sulfides abundant throughout


2.20
2.30
2.40
2.50
2.60
2.70
2.80
2.90
3.00
3.10
3.20
4
Sec. 3
Iron sulfides abundant throughout
@ 297cmbsf shell fragment

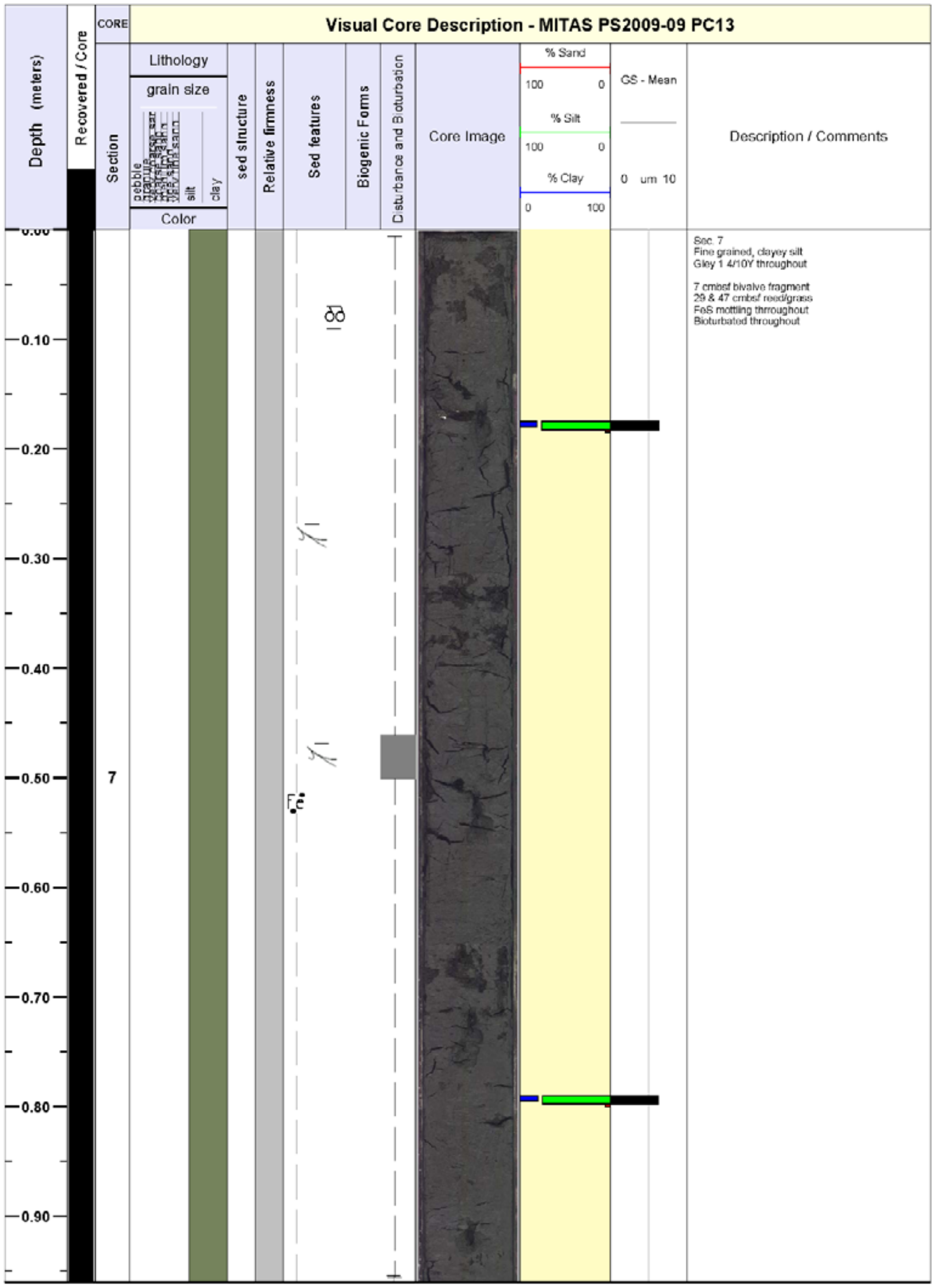

3.30
3.40
3.50
3.60
3.70
3.80
3.90
4.00
4.10
4.20
4.30
4.40
3
2
Sec. 2
Iron sulfide patches abundant
@472 cmbsf shell fragment, bivalve

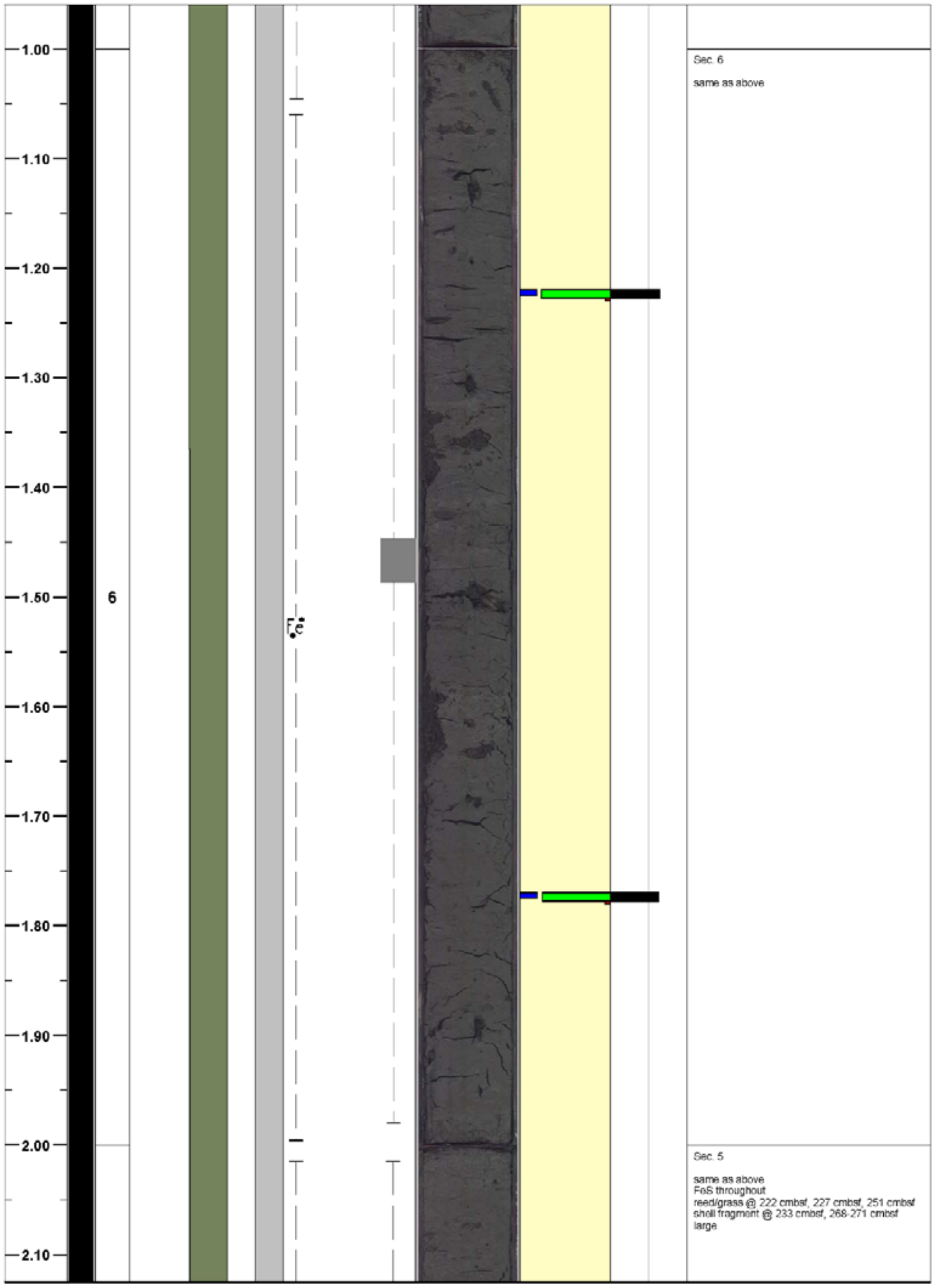

P
C
12
4.50
4.60
4.70
4.80
4.90
5.00
5.10
5.20
5.30
5.40
5.50
5.60
1
Sec. 1
Iron sulfide patches abundant throughout
firm clay
@ 5.11 mbsf reed casing
@ 5.43 mbsf reed casing
@ 5.48 mbsf reed casing

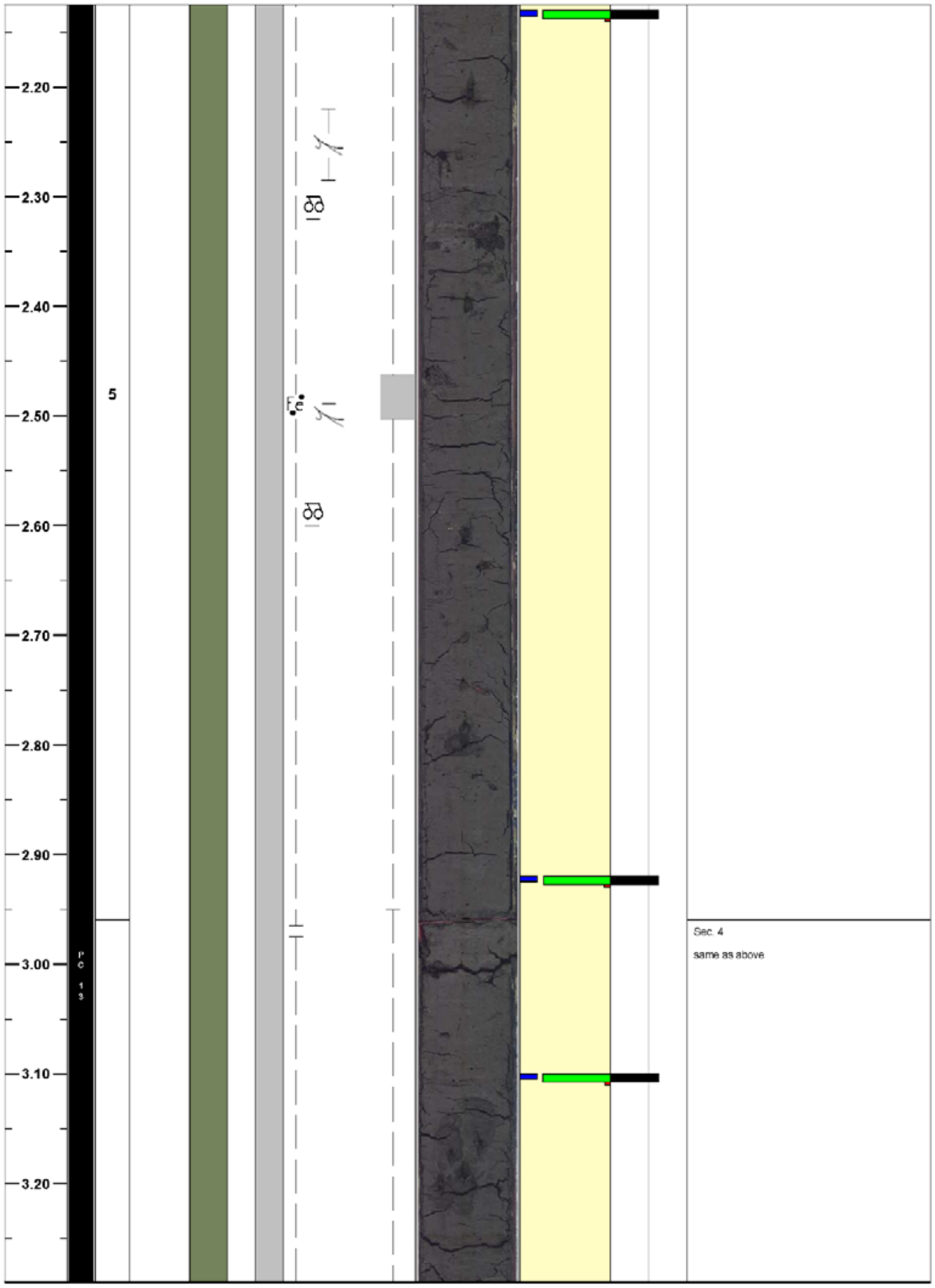

5.70
5.80
5.90

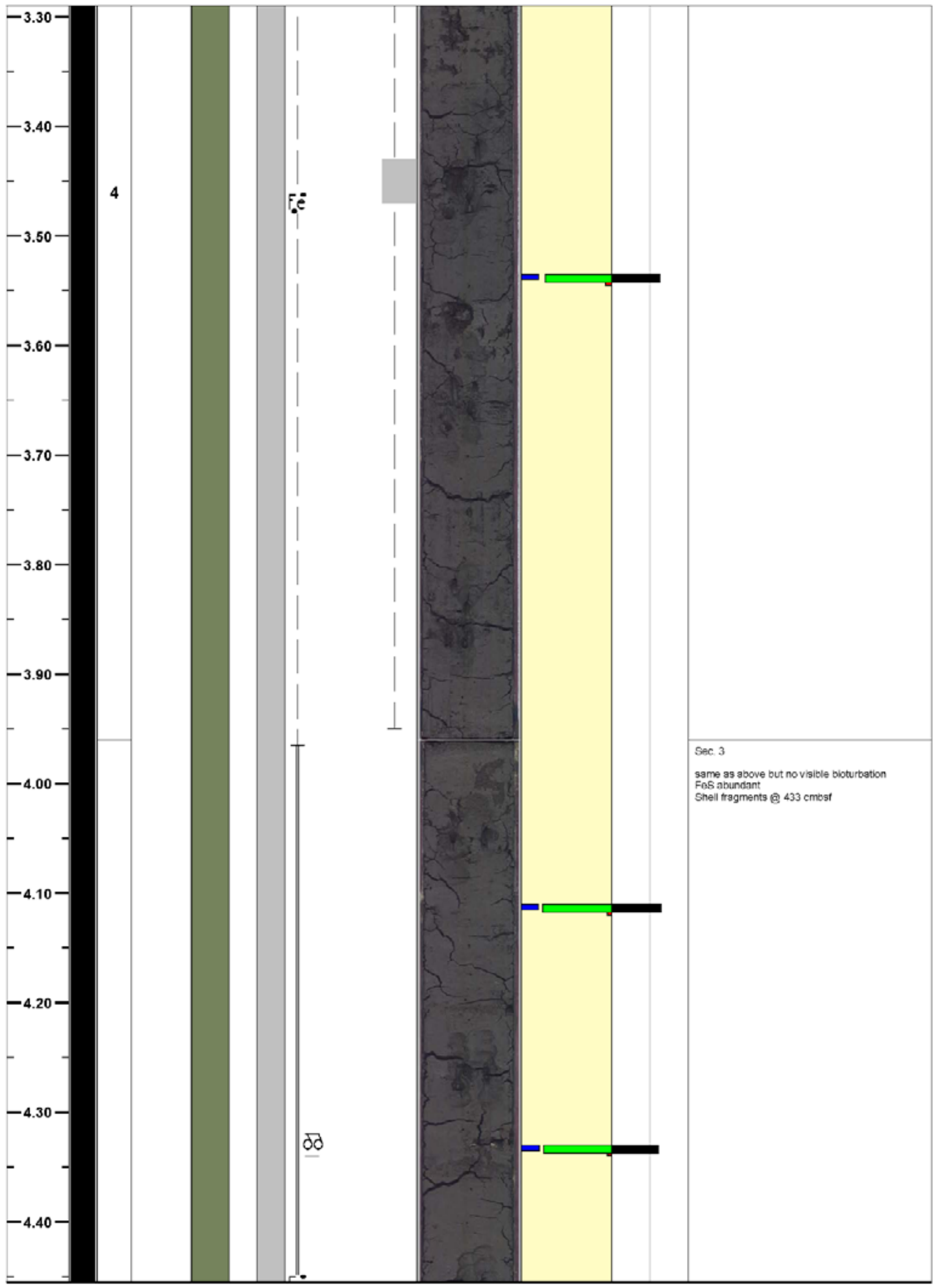


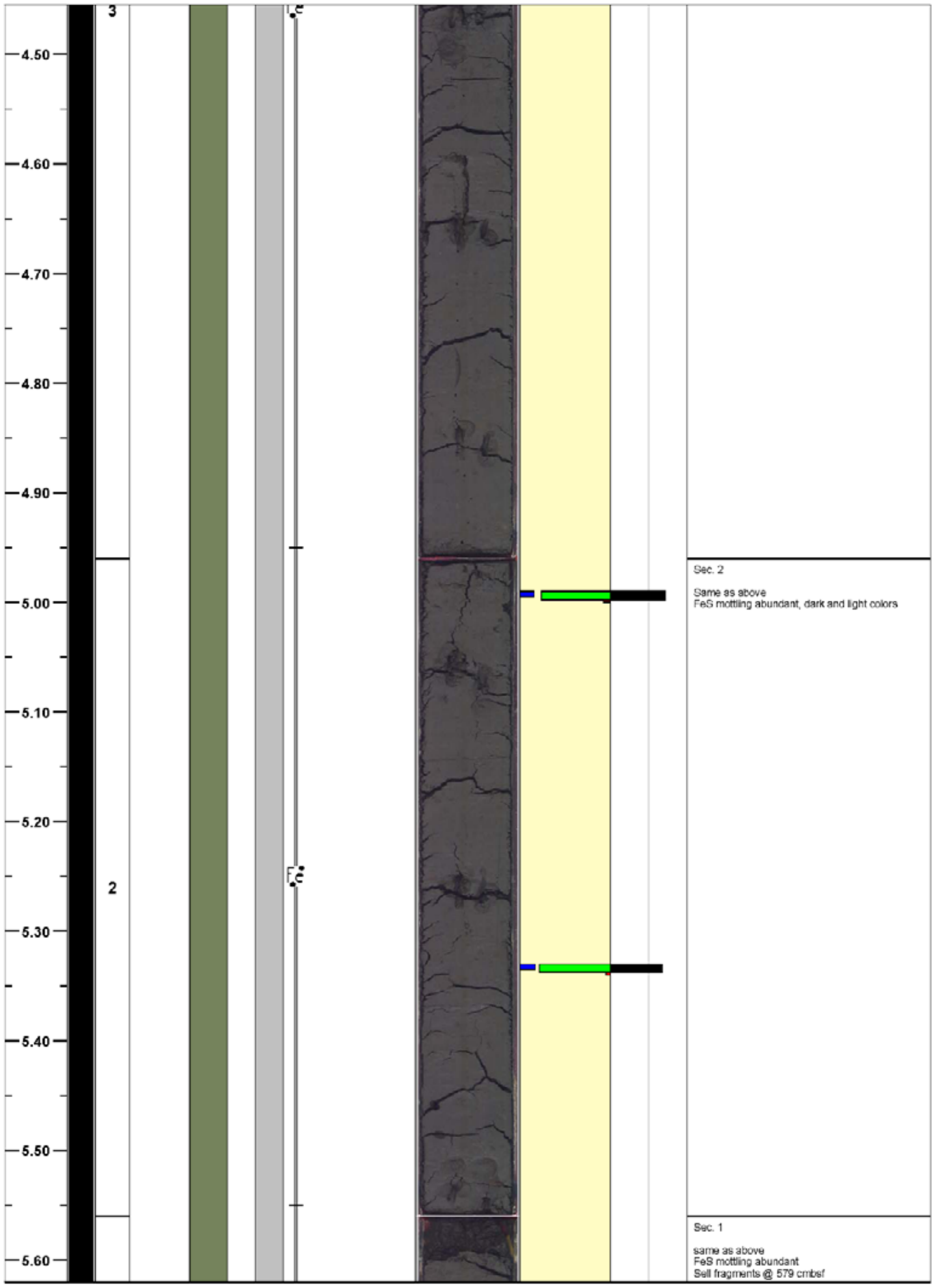
Visual Core Description - MITAS PS2009-09 PC13
CORE
Depth (meters)
Recovered / Core
Section
Lithology
grain size
pebble
silt
clay
Color
sed structure
Relative firmness
Sed features
Biogenic Forms
Disturbance and Bioturbation
Core Image
% Sand
100 0
% Silt
100 0
% Clay
0 100
GS - Mean
0 um 10
Description / Comments
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7
6
5
4
3
2
1
c
PC13
Sec. 7
Fine grained, clayey silt
Gley 1 4/10Y throughout
7 cmbsf bivalve fragment
29 & 47 cmbsf reed/grass
FeS mottling thrroughout
Bioturbated throughout
Sec. 6
same as above
Sec. 5
same as above
FeS throughout
reed/grass @ 222 cmbsf, 227 cmbsf, 251 cmbsf
shell fragment @ 233 cmbsf, 268-271 cmbsf
large
Sec. 4
same as above
Sec. 3
same as above but no visible bioturbation
FeS abundant
Shell fragments @ 433 cmbsf
Sec. 2
Same as above
FeS mottling abundant, dark and light colors
Sec. 1
same as above
FeS mottling abundant
Sell fragments @ 579 cmbsf

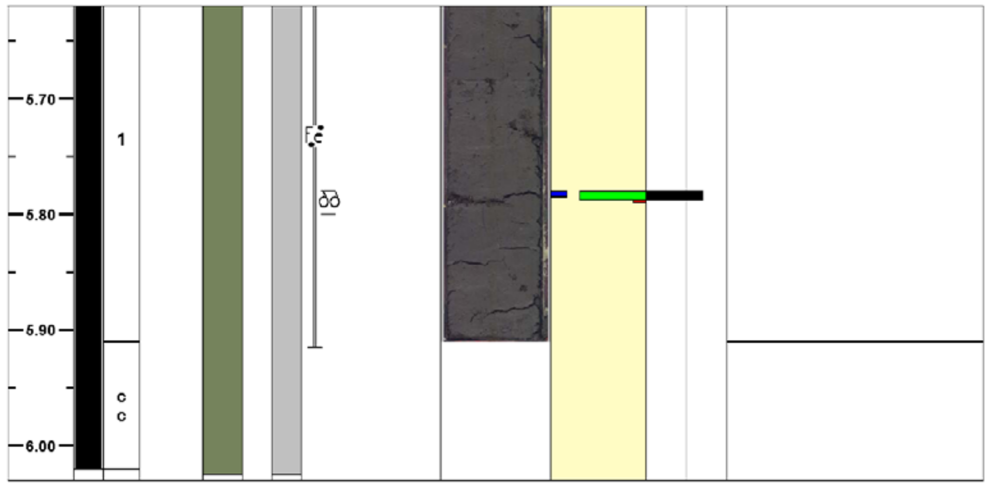

CORE
Visual Core Description - MITAS PS2009-09 PC13
Depth (meters)
Recovered / Core
Section
Lithology
grain size
pebble
silt
clay
Color
sed structure
Relative firmness
Sed features
Biogenic Forms
Disturbance and Bioturbation
Core Image
% Sand
100 0
% Silt
100 0
% Clay
0 100
GS - Mean
0 um 10
Description / Comments
0.10
0.20
0.30
0.40
0.50
0.60
0.70
0.80
0.90
7
Sec. 7
Fine grained, clayey silt
Gley 1 4/10Y throughout
7 cmbsf bivalve fragment
29 & 47 cmbsf reed/grass
FeS mottling throughout
Bioturbated throughout

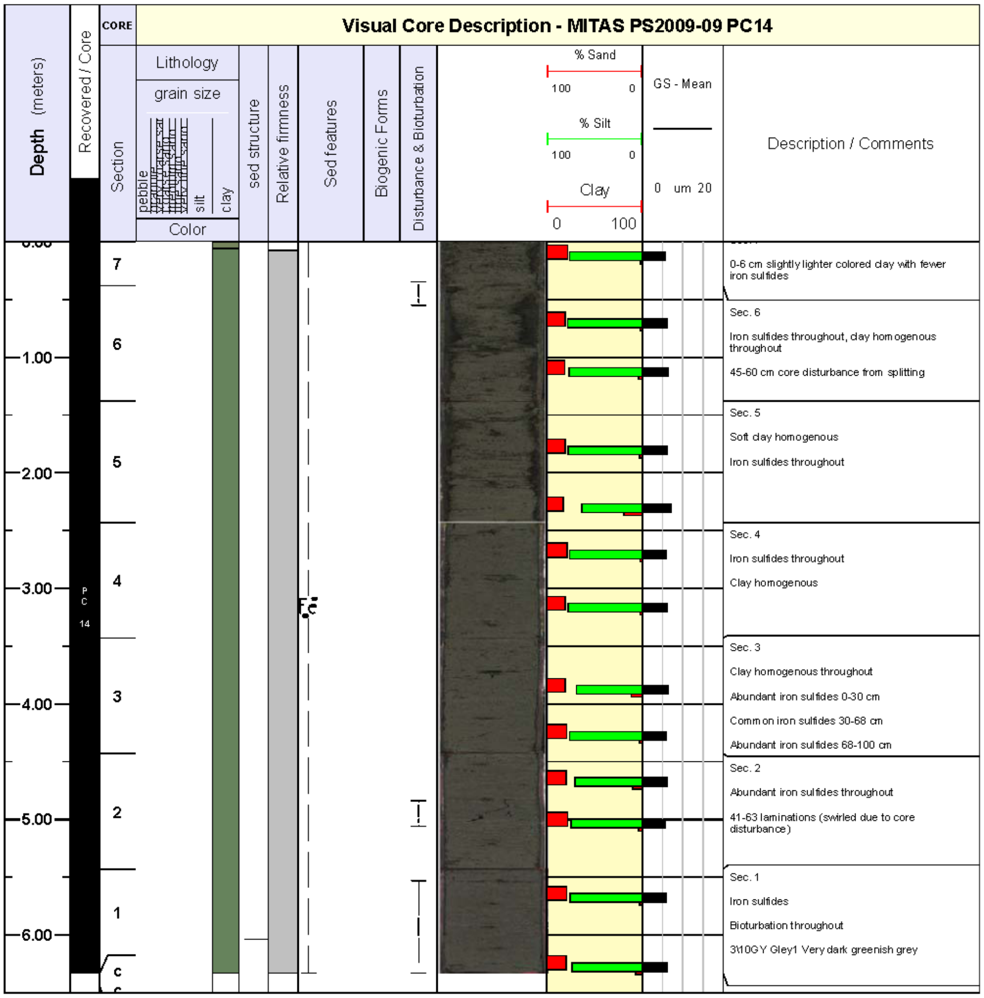

1.00
1.10
1.20
1.30
1.40
1.50
1.60
1.70
1.80
1.90
2.00
2.10
6
Fe
Sec. 6
same as above
Sec. 5
same as above
FeS throughout
reed/grass @ 222 cmbsf, 227 cmbsf, 251 cmbsf
shell fragment @ 233 cmbsf, 268-271 cmbsf
large

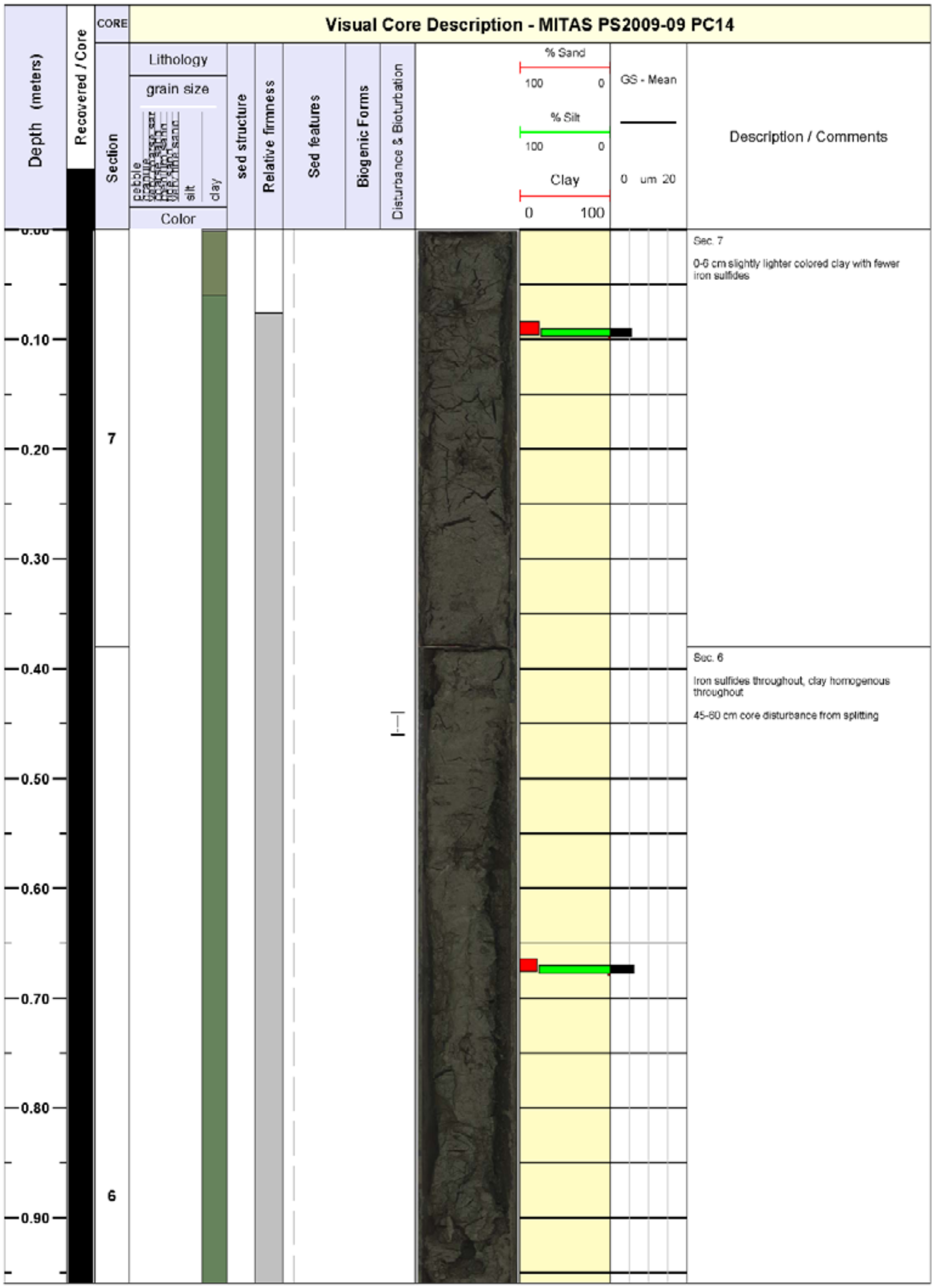

2.20
2.30
2.40
2.50
2.60
2.70
2.80
2.90
3.00
3.10
3.20
5
Fe
Sec. 4
same as above

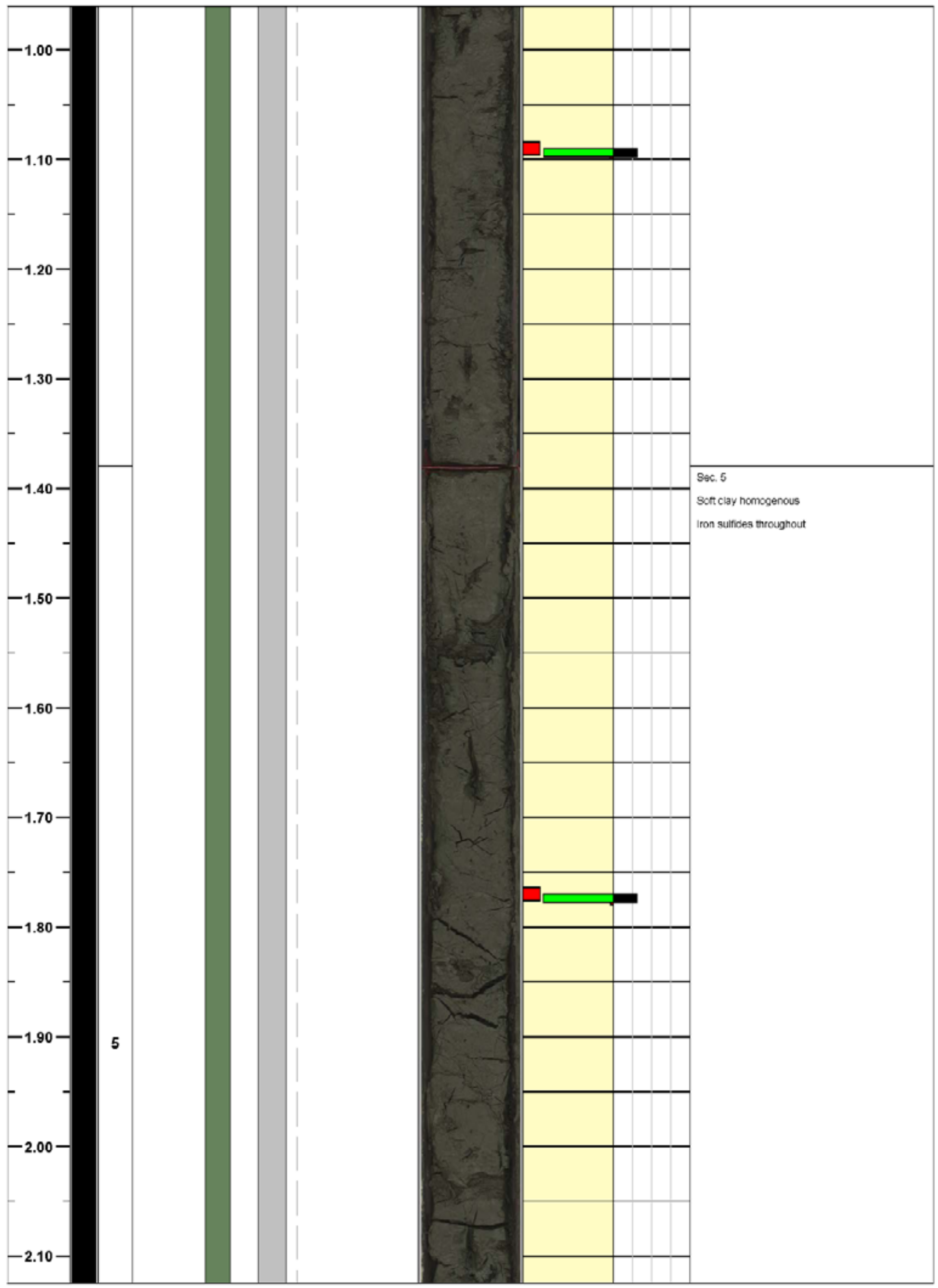

3.30
3.40
3.50
3.60
3.70
3.80
3.90
4.00
4.10
4.20
4.30
4.40
4
Fe
Sec. 3
same as above but no visible bioturbation
FeS abundant
Shell fragments @ 433 cmbsf

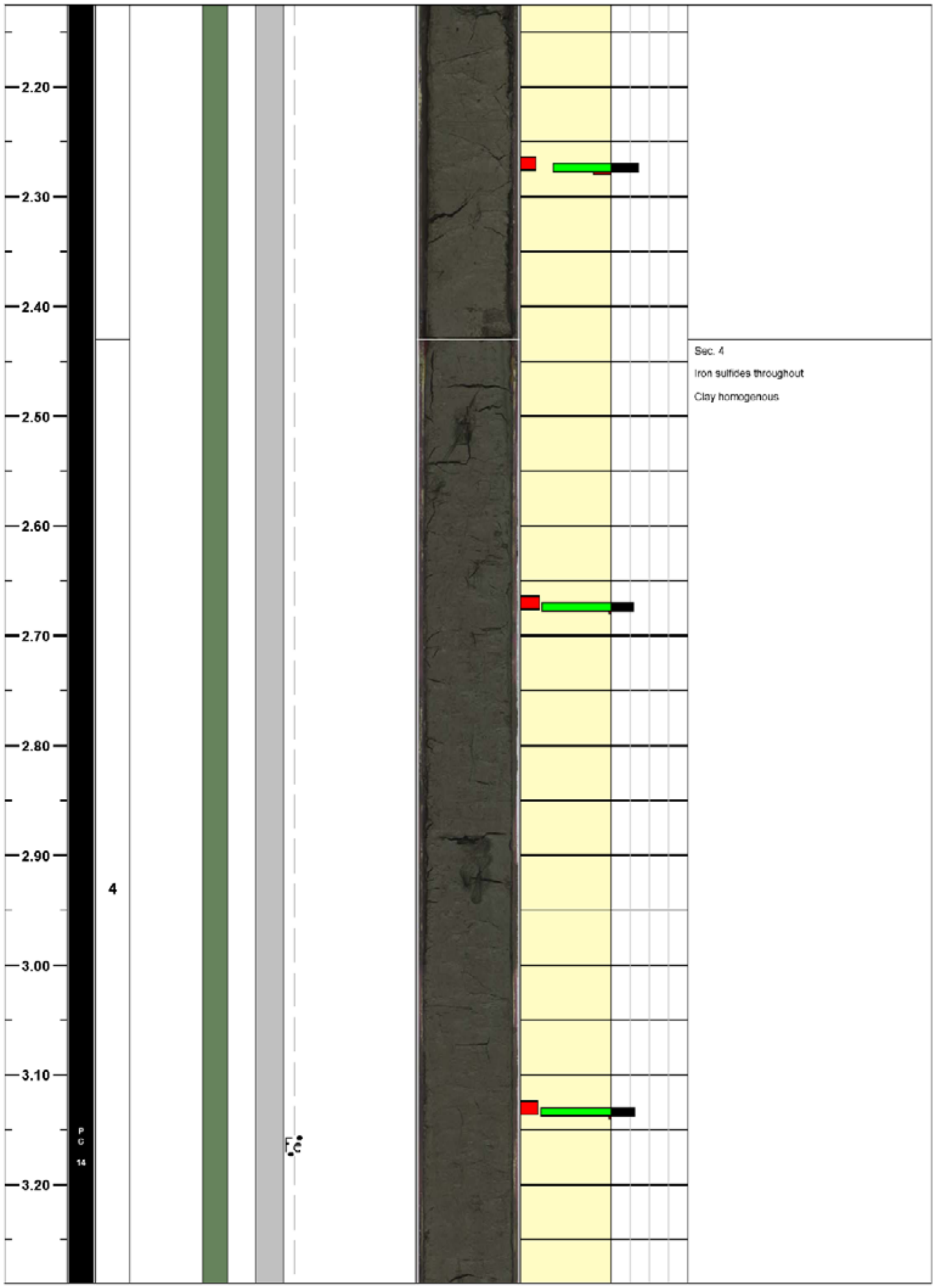

3
4.50
4.60
4.70
4.80
4.90
5.00
5.10
5.20
2
5.30
5.40
5.50
5.60
Fe
Sec. 2
Same as above
FeS mottling abundant, dark and light colors
Sec. 1
same as above
FeS mottling abundant
Sell fragments @ 579 cmbsf

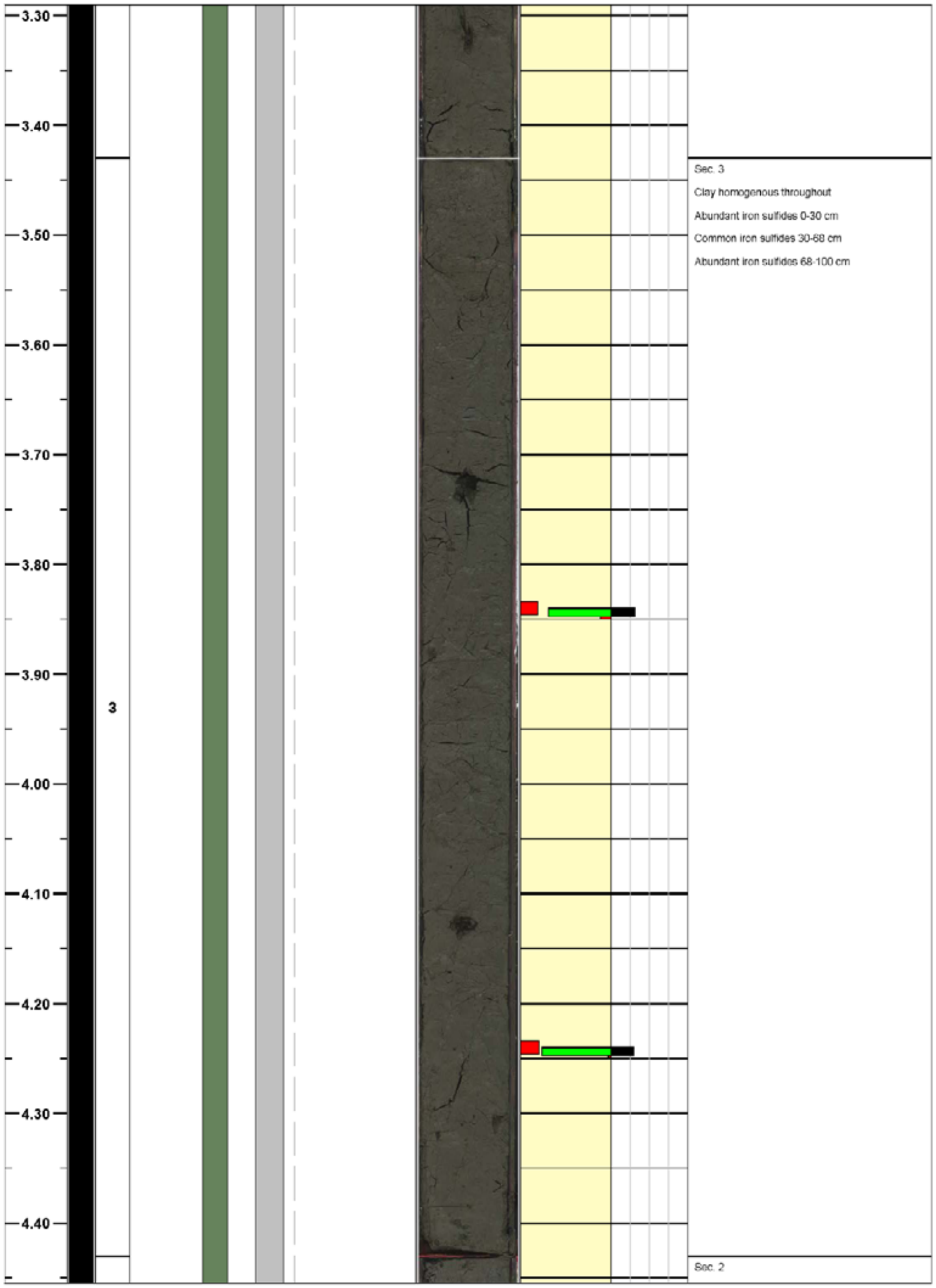

5.70
5.80
5.90
6.00
1
c
c

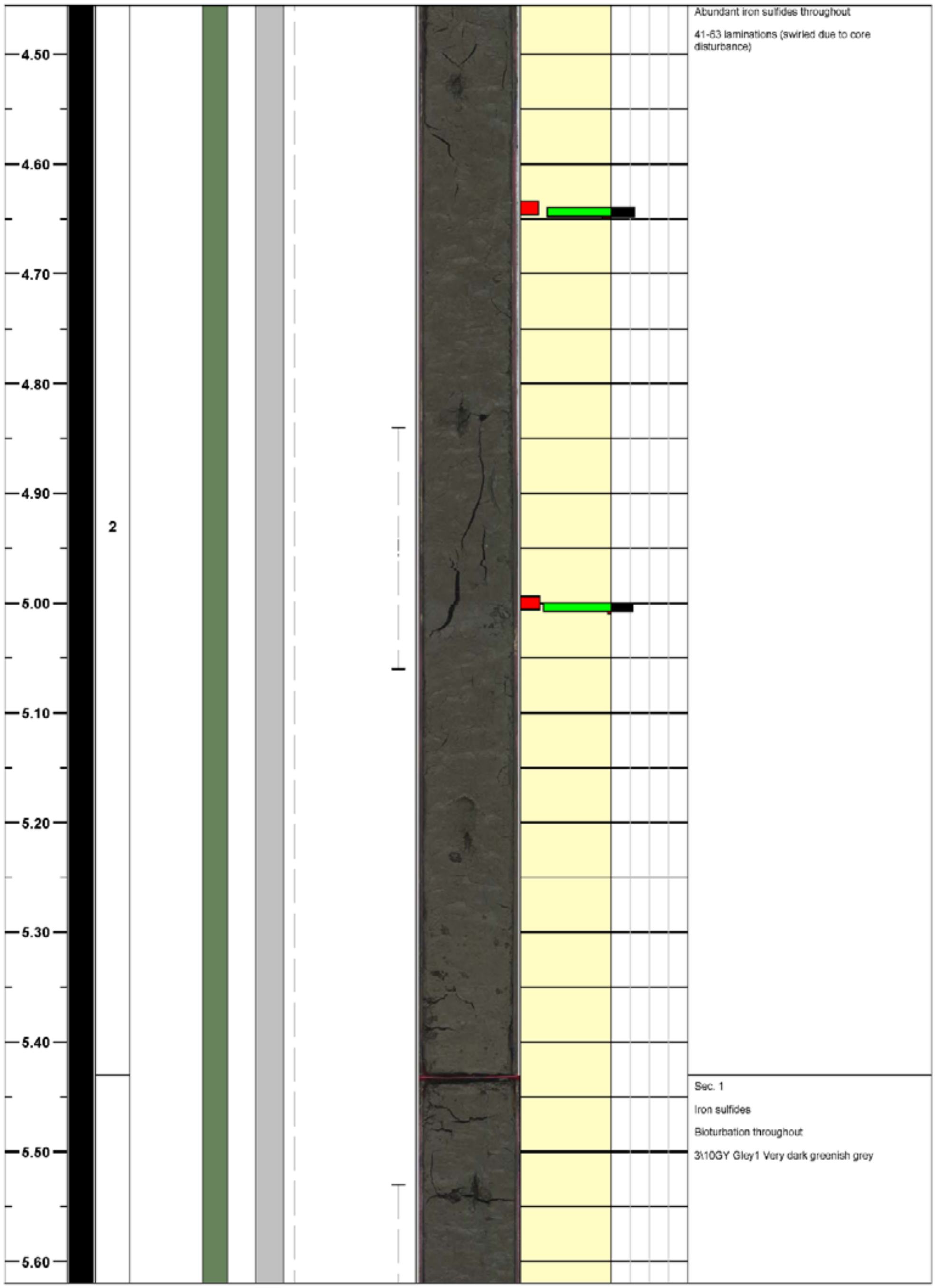

Visual Core Description - MITAS PS2009-09 PC14
Depth (meters)
Recovered / Core
Section
Lithology
grain size
Color
sed structure
Relative firmness
Sed features
Biogenic Forms
Disturbance & Bioturbation
% Sand
% Silt
Clay
GS - Mean
0 um 20
Description / Comments
0-6 cm slightly lighter colored clay with fewer iron sulfides
Sec. 6
Iron sulfides throughout, clay homogenous throughout
45-60 cm core disturbance from splitting
Sec. 5
Soft clay homogenous
Iron sulfides throughout
Sec. 4
Iron sulfides throughout
Clay homogenous
Sec. 3
Clay homogenous throughout
Abundant iron sulfides 0-30 cm
Common iron sulfides 30-68 cm
Abundant iron sulfides 68-100 cm
Sec. 2
Abundant iron sulfides throughout
41-63 laminations (swirled due to core disturbance)
Sec. 1
Iron sulfides
Bioturbation throughout
3\10GY Gley1 Very dark greenish grey

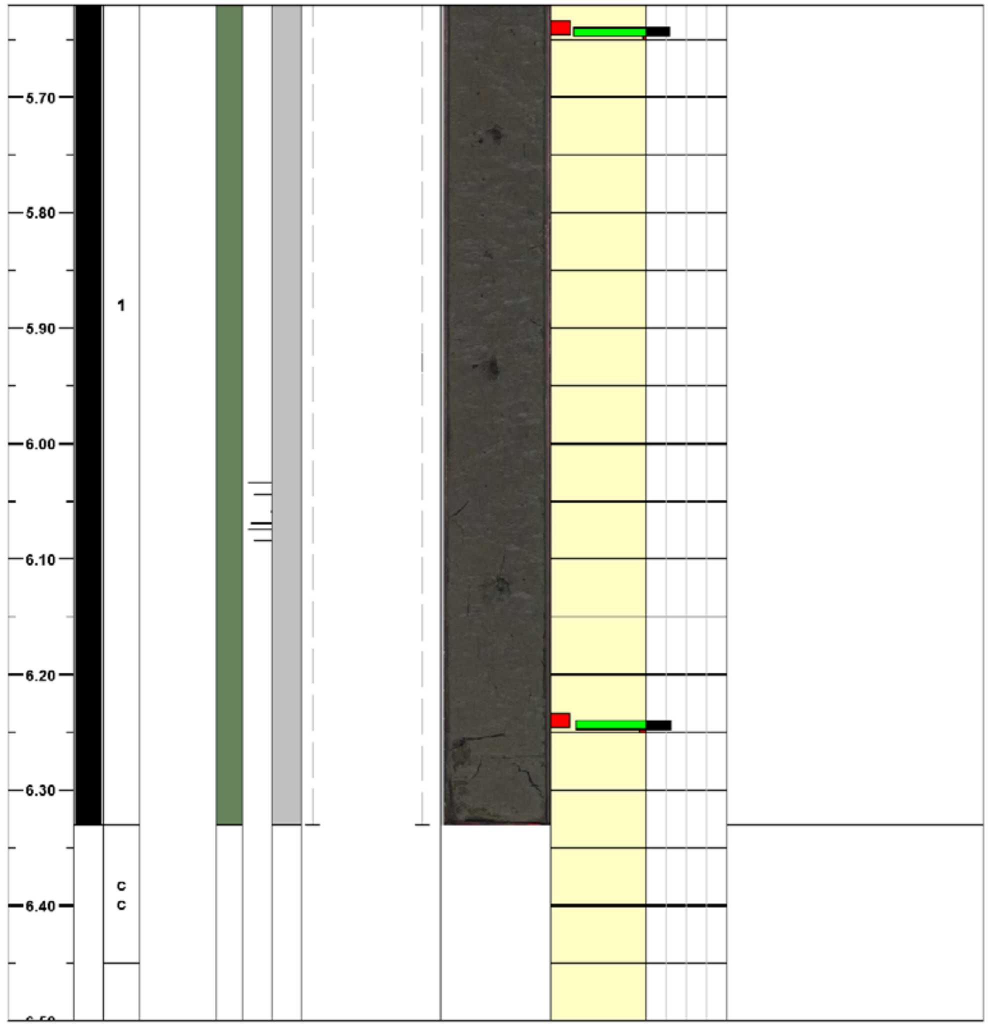

Visual Core Description - MITAS PS2009-09 PC14
CORE
Depth (meters)
Recovered / Core
Section
Lithology
grain size
silt
clay
Color
sed structure
Relative firmness
Sed features
Biogenic Forms
Disturbance & Bioturbation
% Sand
100 0
% Silt
100 0
Clay
0 100
GS - Mean
0 um 20
Description / Comments
0.10
0.20
0.30
0.40
0.50
0.60
0.70
0.80
0.90
7
6
Sec. 7
0-6 cm slightly lighter colored clay with fewer iron sulfides
Sec. 6
Iron sulfides throughout, clay homogenous throughout
45-60 cm core disturbance from splitting

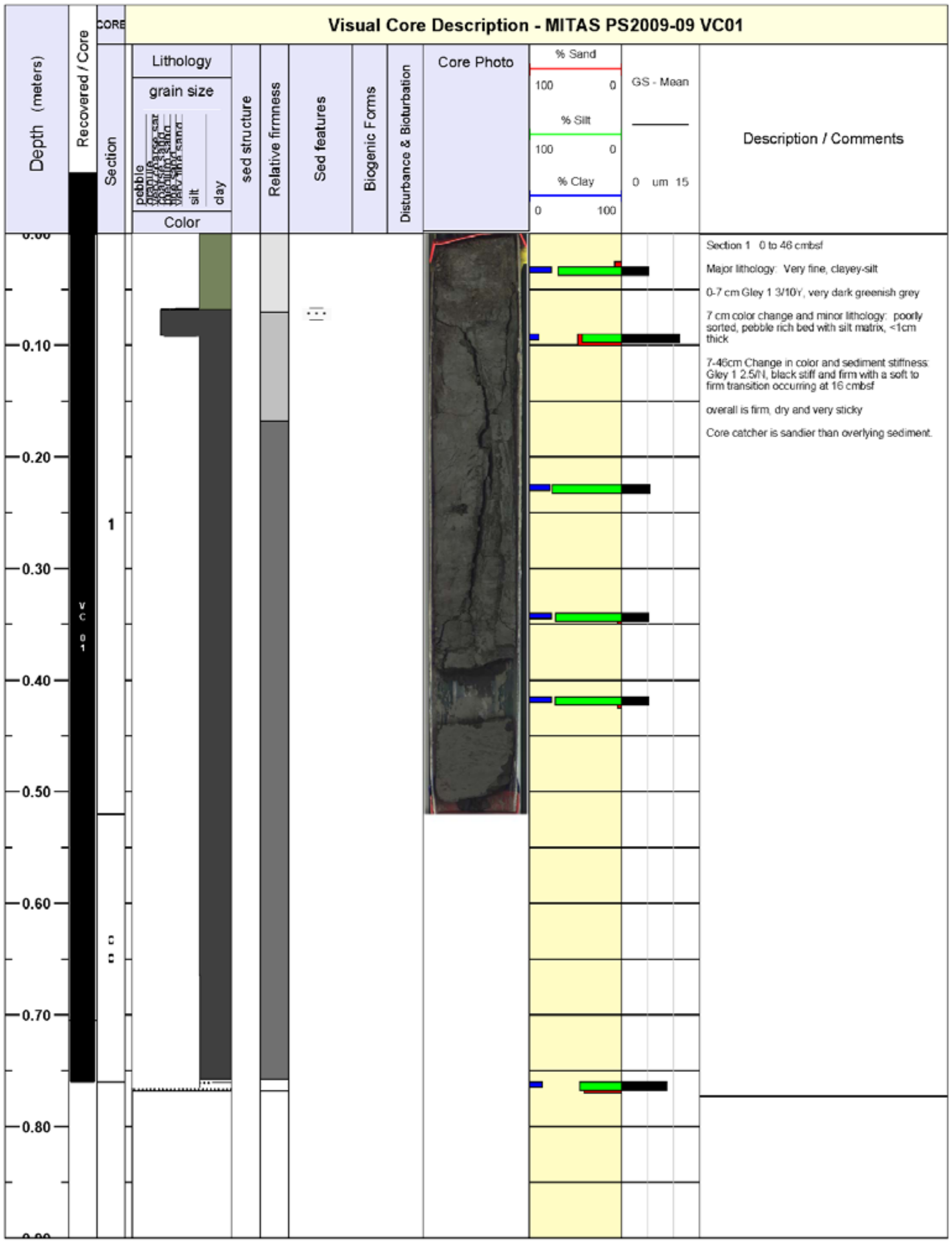

1.00
1.10
1.20
1.30
1.40
1.50
1.60
1.70
1.80
1.90
2.00
2.10
5
Sec. 5
Soft clay homogenous
Iron sulfides throughout


2.20
2.30
2.40
2.50
2.60
2.70
2.80
2.90
3.00
3.10
3.20
4
P
C
14
Sec. 4
Iron sulfides throughout
Clay homogenous

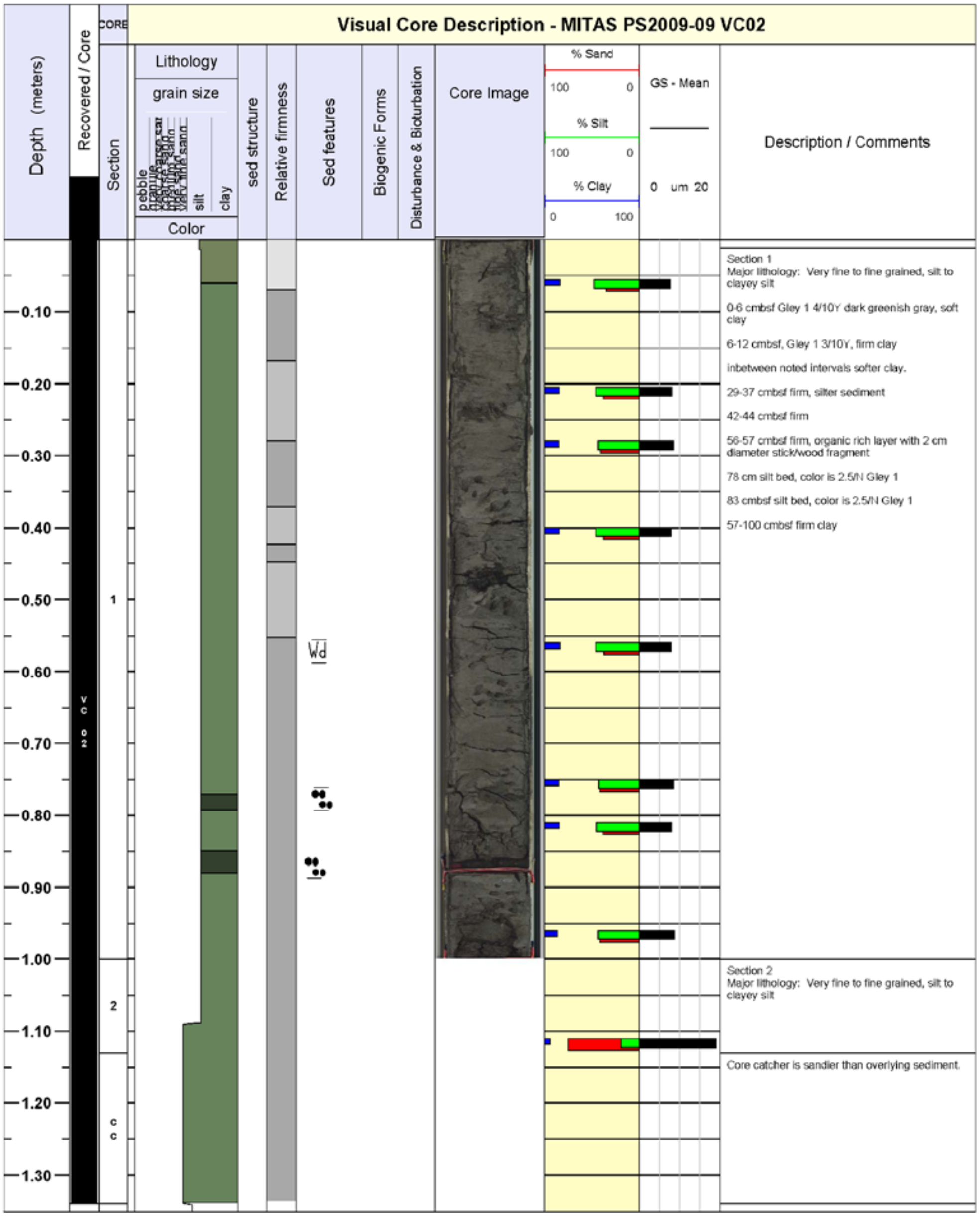

3.30
3.40
3.50
3.60
3.70
3.80
3.90
4.00
4.10
4.20
4.30
4.40
3
Sec. 3
Clay homogenous throughout
Abundant iron sulfides 0-30 cm
Common iron sulfides 30-68 cm
Abundant iron sulfides 68-100 cm
Sec. 2

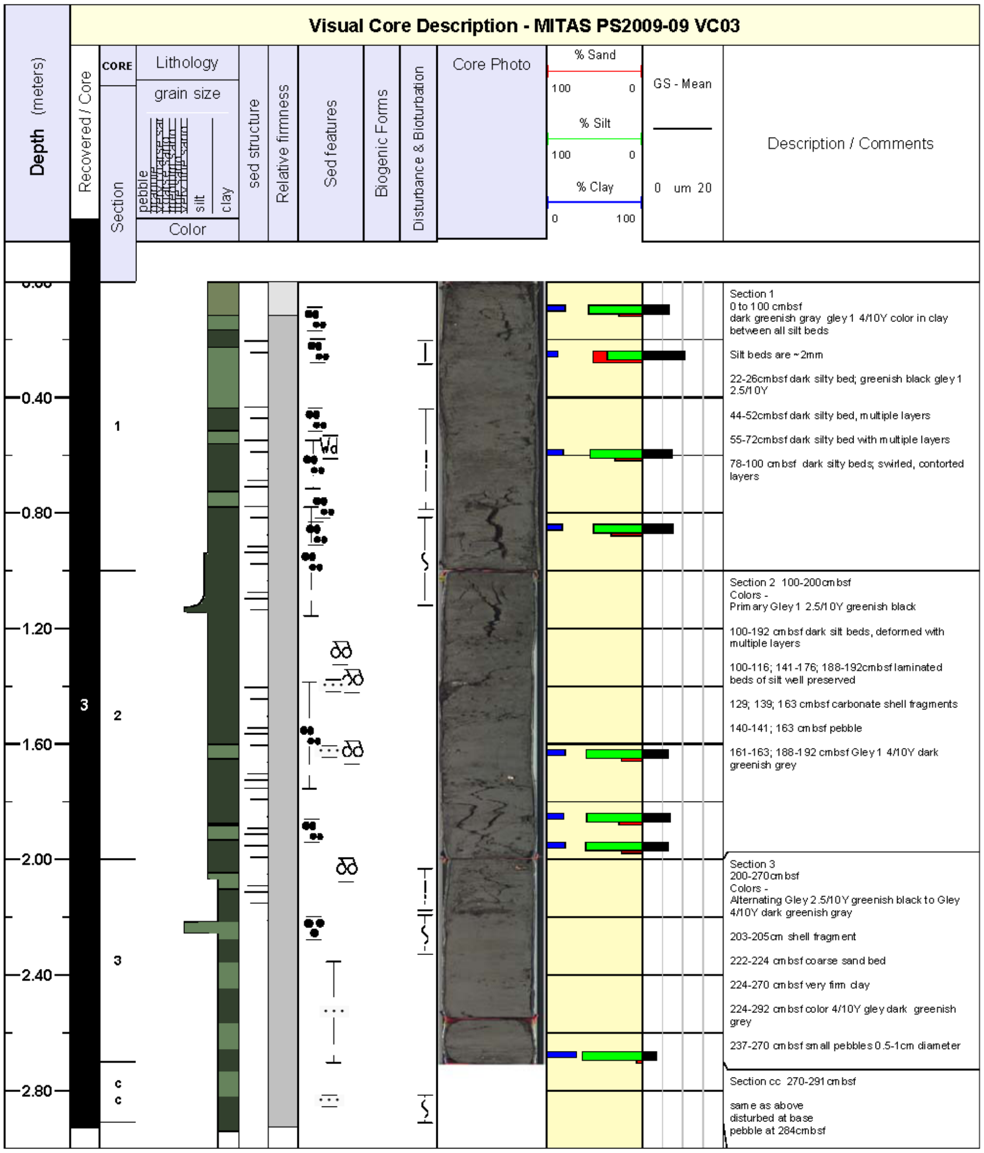

4.50
4.60
4.70
4.80
4.90
5.00
5.10
5.20
5.30
5.40
5.50
5.60
2
Abundant iron sulfides throughout
41-63 laminations (swirled due to core disturbance)
Sec. 1
Iron sulfides
Bioturbation throughout
3\10GY Gley1 Very dark greenish grey

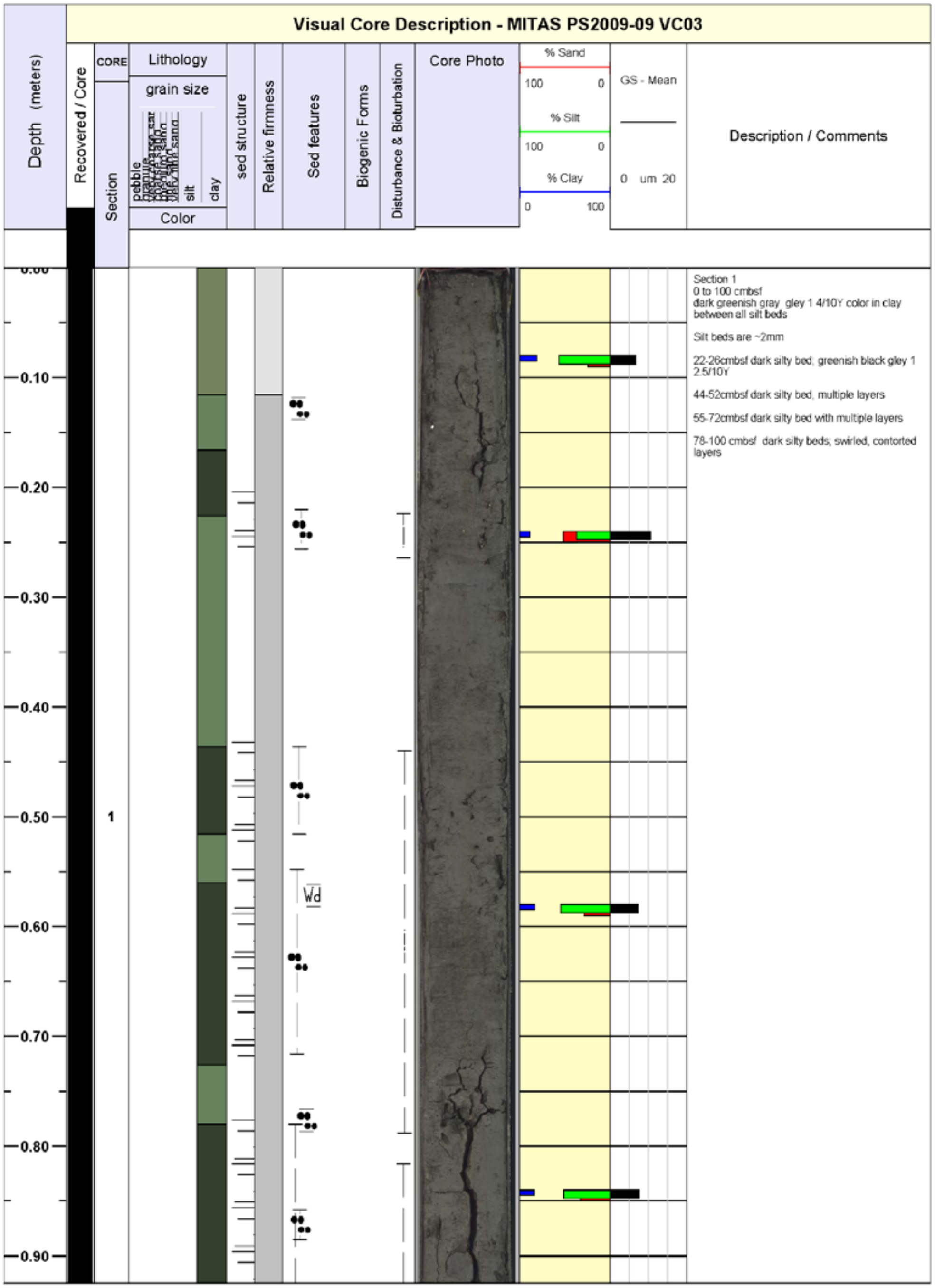

5.70
5.80
5.90
6.00
6.10
6.20
6.30
6.40
1
C
C

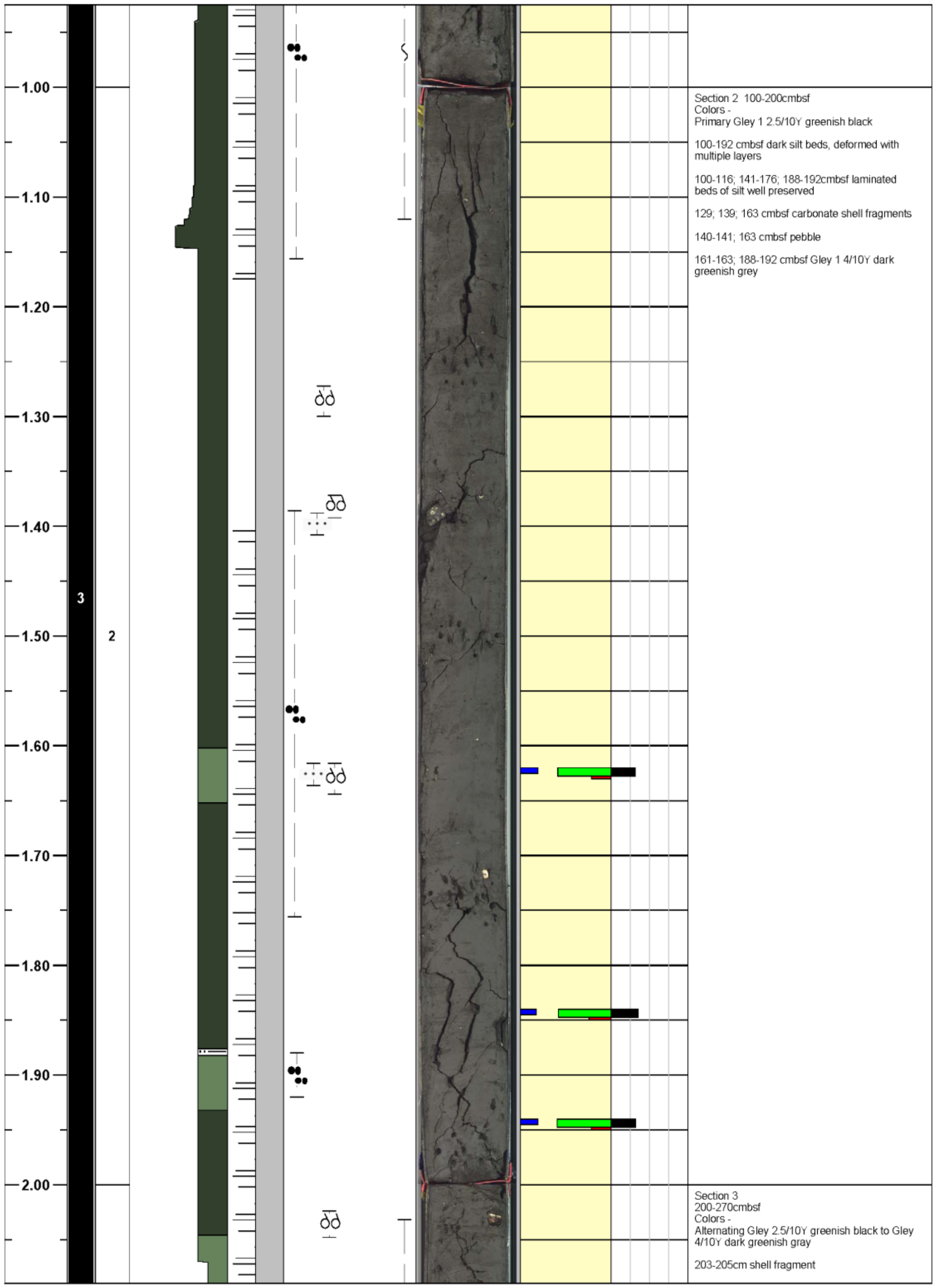


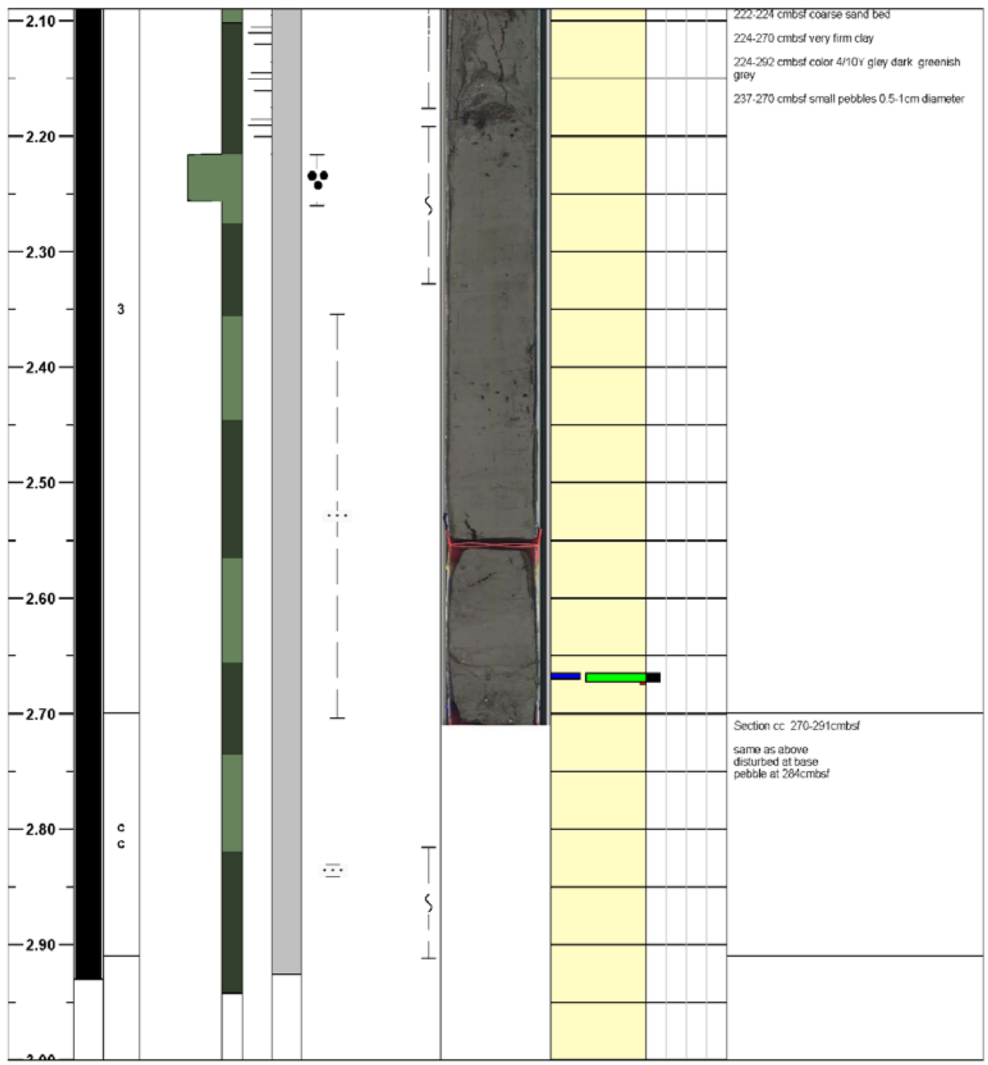
Visual Core Description - MITAS PS2009-09 VC01
Depth (meters)
Recovered / Core
CORE
Section
Lithology
grain size
silt
clay
Color
sed structure
Relative firmness
Sed features
Biogenic Forms
Disturbance & Bioturbation
Core Photo
% Sand
100
0
% Silt
100
0
% Clay
0
100
GS - Mean
0 um 15
Description / Comments
0.10
0.20
0.30
0.40
0.50
0.60
0.70
0.80
1
VC 01
Section 1 0 to 46 cmbsf
Major lithology: Very fine, clayey-silt
0-7 cm Gley 1 3/10Y, very dark greenish grey
7 cm color change and minor lithology: poorly sorted, pebble rich bed with silt matrix, <1cm thick
7-46cm Change in color and sediment stiffness: Gley 1 2.5/N, black stiff and firm with a soft to firm transition occurring at 16 cmbsf
overall is firm, dry and very sticky
Core catcher is sandier than overlying sediment.


Visual Core Description - MITAS PS2009-09 VC02
Depth (meters)
Recovered / Core
CORE
Section
Lithology
grain size
pebble
granule
silt
clay
Color
sed structure
Relative firmness
Sed features
Biogenic Forms
Disturbance & Bioturbation
Core Image
% Sand
100 0
% Silt
100 0
% Clay
0 100
GS - Mean
0 um 20
Description / Comments
0.10
0.20
0.30
0.40
0.50
0.60
0.70
0.80
0.90
1.00
1.10
1.20
1.30
1
2
c c
Wd
Section 1
Major lithology: Very fine to fine grained, silt to clayey silt
0-6 cmbsf Gley 1 4/10Y dark greenish gray, soft clay
6-12 cmbsf, Gley 1 3/10Y, firm clay
inbetween noted intervals softer clay.
29-37 cmbsf firm, silter sediment
42-44 cmbsf firm
56-57 cmbsf firm, organic rich layer with 2 cm diameter stick/wood fragment
78 cm silt bed, color is 2.5/N Gley 1
83 cmbsf silt bed, color is 2.5/N Gley 1
57-100 cmbsf firm clay
Section 2
Major lithology: Very fine to fine grained, silt to clayey silt
Core catcher is sandier than overlying sediment.


Visual Core Description - MITAS PS2009-09 VC03
Depth (meters)
Recovered / Core
CORE
Section
Lithology
grain size
pebble
silt
clay
Color
sed structure
Relative firmness
Sed features
Biogenic Forms
Disturbance & Bioturbation
Core Photo
% Sand
100
0
% Silt
100
0
% Clay
0
100
GS - Mean
0 um 20
Description / Comments
0.40
0.80
1.20
1.60
2.00
2.40
2.80
1
2
3
3
c
c
Section 1
0 to 100 cmbsf
dark greenish gray gley 1 4/10Y color in clay between all silt beds
Silt beds are ~2mm
22-26cmbsf dark silty bed; greenish black gley 1 2.5/10Y
44-52cmbsf dark silty bed, multiple layers
55-72cmbsf dark silty bed with multiple layers
78-100 cmbsf dark silty beds; swirled, contorted layers
Section 2 100-200cmbsf
Colors -
Primary Gley 1 2.5/10Y greenish black
100-192 cmbsf dark silt beds, deformed with multiple layers
100-116; 141-176; 188-192cmbsf laminated beds of silt well preserved
129; 139; 163 cmbsf carbonate shell fragments
140-141; 163 cmbsf pebble
161-163; 188-192 cmbsf Gley 1 4/10Y dark greenish grey
Section 3
200-270cmbsf
Colors -
Alternating Gley 2.5/10Y greenish black to Gley 4/10Y dark greenish gray
203-205cm shell fragment
222-224 cmbsf coarse sand bed
224-270 cmbsf very firm clay
224-292 cmbsf color 4/10Y gley dark greenish grey
237-270 cmbsf small pebbles 0.5-1cm diameter
Section cc 270-291cmbsf
same as above
disturbed at base
pebble at 284cmbsf


Visual Core Description - MITAS PS2009-09 VC03
Depth (meters)
Recovered / Core
CORE
Section
Lithology
grain size
silt
clay
Color
sed structure
Relative firmness
Sed features
Biogenic Forms
Disturbance & Bioturbation
Core Photo
% Sand
100 0
% Silt
100 0
% Clay
0 100
GS - Mean
0 um 20
Description / Comments
0.10
0.20
0.30
0.40
0.50
0.60
0.70
0.80
0.90
1
Wd
Section 1
0 to 100 cmbsf
dark greenish gray gley 1 4/10Y color in clay between all silt beds
Silt beds are ~2mm
22-26cmbsf dark silty bed; greenish black gley 1 2.5/10Y
44-52cmbsf dark silty bed, multiple layers
55-72cmbsf dark silty bed with multiple layers
78-100 cmbsf dark silty beds; swirled, contorted layers


-1.00
-1.10
-1.20
-1.30
-1.40
-1.50
-1.60
-1.70
-1.80
-1.90
-2.00
3
2
Section 2 100-200cmbsf
Colors -
Primary Gley 1 2.5/10Y greenish black
100-192 cmbsf dark silt beds, deformed with multiple layers
100-116; 141-176; 188-192cmbsf laminated beds of silt well preserved
129; 139; 163 cmbsf carbonate shell fragments
140-141; 163 cmbsf pebble
161-163; 188-192 cmbsf Gley 1 4/10Y dark greenish grey
Section 3
200-270cmbsf
Colors -
Alternating Gley 2.5/10Y greenish black to Gley 4/10Y dark greenish gray
203-205cm shell fragment


2.10
2.20
2.30
2.40
2.50
2.60
2.70
2.80
2.90
3
c
c
222-224 cmbsf coarse sand bed
224-270 cmbsf very firm clay
224-292 cmbsf color 4/10Y gley dark greenish grey
237-270 cmbsf small pebbles 0.5-1cm diameter
Section cc 270-291cmbsf
same as above
disturbed at base
pebble at 284cmbsf

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APPENDIX 3 MITAS-2009 SED SAMPLE LOG

For the full spreadsheet workbook of the SED sample log, please see the original data file in EDX (Appendix 3).

Date	Expedition	Core	Length of Core (cm)	Barrel #	Section #	Section Top (cm) in Barrel	Section Bottom (cm) in Barrel	Sample Code	Sample Top (cmbsf)	Sample Base (cmbsf)	Avg Depth (cmbsf)
9/19/2009	MITAS PS2009-09	VC-01	76.5	I	1	0	52	SED	2	3	3
9/19/2009	MITAS PS2009-09	VC-01	76.5	I	1	0	52	SED	8	10	9
9/19/2009	MITAS PS2009-09	VC-01	76.5	I	1	0	52	SED	22	23	23
9/19/2009	MITAS PS2009-09	VC-01	76.5	I	1	0	52	SED	33	35	34
9/19/2009	MITAS PS2009-09	VC-01	76.5	I	1	0	52	SED	40	42	41
9/19/2009	MITAS PS2009-09	VC-02	134	I	1	0	100	SED	5	6	6
9/19/2009	MITAS PS2009-09	VC-02	134	I	1	0	100	SED	20	22	21
9/19/2009	MITAS PS2009-09	VC-02	134	I	1	0	100	SED	28	30	29
9/19/2009	MITAS PS2009-09	VC-02	134	I	1	0	100	SED	40	42	41
9/19/2009	MITAS PS2009-09	VC-02	134	I	1	0	100	SED	55	57	56
9/19/2009	MITAS PS2009-09	VC-02	134	I	1	0	100	SED	74	76	75
9/19/2009	MITAS PS2009-09	VC-02	134	I	1	0	100	SED	80	82	81
9/19/2009	MITAS PS2009-09	VC-02	134	I	1	0	100	SED	95	97	96
9/19/2009	MITAS PS2009-09	VC-02	134	I	2	0	13	SED	110	112	111
9/19/2009	MITAS PS2009-09	VC-02	134	I	1	0	100	SED-RC	55	57	56
9/19/2009	MITAS PS2009-09	VC-03	293	I	1	0	100	SED	2	3	3
9/19/2009	MITAS PS2009-09	VC-03	293	I	1	0	100	SED	7	9	8
9/19/2009	MITAS PS2009-09	VC-03	293	I	1	0	100	SED	23	24	24
9/19/2009	MITAS PS2009-09	VC-03	293	I	1	0	100	SED	57	59	58
9/19/2009	MITAS PS2009-09	VC-03	293	I	1	0	100	SED	83	85	84
9/19/2009	MITAS PS2009-09	VC-03	293	I	2	100	200	SED	105	107	106
9/19/2009	MITAS PS2009-09	VC-03	293	I	2	100	200	SED	161	163	162
9/19/2009	MITAS PS2009-09	VC-03	293	I	2	100	200	SED	183	185	184
9/19/2009	MITAS PS2009-09	VC-03	293	I	2	100	200	SED	193	194	194
9/19/2009	MITAS PS2009-09	VC-03	293	I	3	200	271	SED	223	225	224
9/19/2009	MITAS PS2009-09	VC-03	293	I	3	200	271	SED	266	267	267
9/20/2009	MITAS PS2009-09	PC-02	686	III	7	0	75	SED	15	17	16
9/20/2009	MITAS PS2009-09	PC-02	686	III	7	0	75	SED	65	67	66
9/20/2009	MITAS PS2009-09	PC-02	686	II	6	0	100	SED	103	105	104
9/20/2009	MITAS PS2009-09	PC-02	686	II	6	0	100	SED	155	157	156
9/20/2009	MITAS PS2009-09	PC-02	686	II	5	100	200	SED	195	197	196
9/20/2009	MITAS PS2009-09	PC-02	686	II	5	100	200	SED	225	227	226
9/20/2009	MITAS PS2009-09	PC-02	686	II	4	200	306	SED	325	327	326
9/20/2009	MITAS PS2009-09	PC-02	686	II	4	200	306	SED	345	347	346
9/20/2009	MITAS PS2009-09	PC-02	686	I	3	100	0	SED	411	413	412
9/20/2009	MITAS PS2009-09	PC-02	686	I	3	100	0	SED	431	433	432
9/20/2009	MITAS PS2009-09	PC-02	686	I	3	100	0	SED	451	453	452
9/20/2009	MITAS PS2009-09	PC-02	686	I	2	100	200	SED	494	497	496
9/20/2009	MITAS PS2009-09	PC-02	686	I	2	100	200	SED	557	561	559
9/20/2009	MITAS PS2009-09	PC-02	686	I	1	200	300	SED	630	633	632
9/20/2009	MITAS PS2009-09	PC-02	686	I	1	200	300	SED	657	661	659
9/20/2009	MITAS PS2009-09	PC-02	686	I	1	200	300	SED	667	669	668
9/20/2009	MITAS PS2009-09	PC-03	713	III	7	0	90	SED	7	9	8
9/20/2009	MITAS PS2009-09	PC-03	713	III	7	0	90	SED	49	51	50
9/20/2009	MITAS PS2009-09	PC-03	713	II	6	0	100	SED	108	110	109
9/20/2009	MITAS PS2009-09	PC-03	713	II	6	0	100	SED	170	172	171
9/20/2009	MITAS PS2009-09	PC-03	713	II	5	100	200	SED	213	215	214
9/20/2009	MITAS PS2009-09	PC-03	713	II	5	100	200	SED	261	263	262
9/20/2009	MITAS PS2009-09	PC-03	713	II	4	200	305	SED	310	312	311
9/20/2009	MITAS PS2009-09	PC-03	713	II	4	200	305	SED	353	355	354
9/20/2009	MITAS PS2009-09	PC-03	713	I	3	0	100	SED	433	435	434
9/20/2009	MITAS PS2009-09	PC-03	713	I	3	0	100	SED	470	472	471
9/20/2009	MITAS PS2009-09	PC-03	713	I	2	100	200	SED	510	512	511
9/20/2009	MITAS PS2009-09	PC-03	713	I	2	100	200	SED	569	571	570
9/20/2009	MITAS PS2009-09	PC-03	713	I	1	200	298	SED	645	647	646
9/20/2009	MITAS PS2009-09	PC-03	713	I	1	200	298	SED	629	631	630

Date	Expedition	Core	Length of Core (cm)	Barrel #	Section #	Section Top (cm) in Barrel	Section Bottom (cm) in Barrel	Sample Code	Sample Top (cmbsf)	Sample Base (cmbsf)	Avg Depth (cmbsf)
9/20/2009	MITAS PS2009-09	PC-04	387	II	4	0	84	SED	2	4	3
9/20/2009	MITAS PS2009-09	PC-04	387	II	4	0	84	SED	40	42	41
9/20/2009	MITAS PS2009-10	PC-04	387	II	4	0	84	SED	56	58	57
9/20/2009	MITAS PS2009-09	PC-04	387	II	4	0	84	SED	62	64	63
9/20/2009	MITAS PS2009-09	PC-04	387	I	3	0	100	SED	106	108	107
9/20/2009	MITAS PS2009-09	PC-04	387	I	3	0	100	SED	176	178	177
9/20/2009	MITAS PS2009-09	PC-04	387	I	2	100	200	SED	187	189	188
9/20/2009	MITAS PS2009-09	PC-04	387	I	2	100	200	SED	266	268	267
9/20/2009	MITAS PS2009-09	PC-04	387	I	1	200	298	SED	312	314	313
9/20/2009	MITAS PS2009-09	PC-04	387	I	1	200	298	SED	338	340	339
9/20/2009	MITAS PS2009-09	PC-04	387	I	1	200	298	SED	350	352	351
9/20/2009	MITAS PS2009-09	PC-04	387	I	1	200	298	SED	369	371	370
9/22/2009	MITAS PS2009-09	PC-06	324	II	5	0	25	SED	0	1	1
9/22/2009	MITAS PS2009-09	PC-06	324	II	5	0	25	SED	8	9	9
9/22/2009	MITAS PS2009-09	PC-06	324	II	4	25	46	SED	43	45	44
9/22/2009	MITAS PS2009-09	PC-06	324	I	2	100	200	SED	164	165	165
9/22/2009	MITAS PS2009-09	PC-06	324	I	3	0	100	SED	126	128	127
9/22/2009	MITAS PS2009-09	PC-06	324	I	3	0	100	SED	138	141	140
9/22/2009	MITAS PS2009-09	PC-06	324	I	2	100	200	SED	241	243	242
9/22/2009	MITAS PS2009-09	PC-06	324	I	1	200	264	SED CAR	270	272	271
9/22/2009	MITAS PS2009-09	PC-06	324	I	1	200	264	SED	296	298	297
9/22/2009	MITAS PS2009-09	PC-06	324	I	1	200	264	SEDCAR	268	268	268
9/22/2009	MITAS PS2009-09	PC-06	324	I	1	200	264	SEDCAR	283	283	283
9/22/2009	MITAS PS2009-09	PC-06	324	I	1	200	264	SEDCAR	290	290	290
9/22/2009	MITAS PS2009-09	PC-07	164	I	2	0	100	SED	4	5	5
9/22/2009	MITAS PS2009-09	PC-07	164	I	2	0	100	SED	38	40	39
9/22/2009	MITAS PS2009-09	PC-07	164	I	2	0	100	SED	47	49	48
9/22/2009	MITAS PS2009-09	PC-07	164	I	1	100	152	SED	110	112	111
9/22/2009	MITAS PS2009-09	PC-07	164	I	1	100	152	SED	130	132	131
9/22/2009	MITAS PS2009-09	PC-07	164	I	2	0	100	SED-RC	5	5	5
9/22/2009	MITAS PS2009-09	PC-08	239	I	3	0	100	SED	6	8	7
9/22/2009	MITAS PS2009-09	PC-08	239	I	3	0	100	SED	61	63	62
9/22/2009	MITAS PS2009-09	PC-08	239	I	3	0	100	SED	73	75	74
9/22/2009	MITAS PS2009-09	PC-08	239	I	3	0	100	SED	78	80	79
9/22/2009	MITAS PS2009-09	PC-08	239	I	2	100	200	SED CAR	118	119	119
9/22/2009	MITAS PS2009-09	PC-08	239	I	2	100	200	SED	122	124	123
9/22/2009	MITAS PS2009-09	PC-08	239	I	1	0	227	SED	202	204	203
9/22/2009	MITAS PS2009-09	PC-08	239	I	1	0	227	SED	211	213	212
9/22/2009	MITAS PS2009-09	PC-08	239	I	1	0	227	SED	222	224	223
9/22/2009	MITAS PS2009-09	PC-09	417	II	5	0	50	SED	8	10	9
9/22/2009	MITAS PS2009-09	PC-09	417	II	5	0	50	SED	44	46	45
9/22/2009	MITAS PS2009-09	PC-09	417	II	4	0	62	SED	82	84	83
9/22/2009	MITAS PS2009-09	PC-09	417	I	3	0	100	SED	154	156	155
9/22/2009	MITAS PS2009-09	PC-09	417	I	3	0	100	SED	206	208	207
9/24/2009	MITAS PS2009-09	PC-09	417	I	2	100	200	SED	240	242	241
9/23/2009	MITAS PS2009-09	PC-09	417	I	2	100	200	SED	282	284	283
9/22/2009	MITAS PS2009-09	PC-09	417	I	1	0	292	SED	342	344	343
9/22/2009	MITAS PS2009-09	PC-09	417	I	1	0	292	SED	365	367	366
9/24/2009	MITAS PS2009-09	PC-10	581	II	6	0	100	SED	13	15	14
9/24/2009	MITAS PS2009-09	PC-10	581	II	6	0	100	SED	80	82	81
9/24/2009	MITAS PS2009-09	PC-10	581	II	5	100	200	SED	136	138	137
9/24/2009	MITAS PS2009-09	PC-10	581	II	5	100	200	SED	180	182	181
9/24/2009	MITAS PS2009-09	PC-10	581	II	4	200	288	SED	238	240	239
9/24/2009	MITAS PS2009-09	PC-10	581	II	4	200	288	SED	282	284	283
9/24/2009	MITAS PS2009-09	PC-10	581	I	3	0	100	SED	309	310	310
9/24/2009	MITAS PS2009-09	PC-10	581	I	3	0	100	SED	368	370	369

Date	Expedition	Core	Length of Core (cm)	Barrel #	Section #	Section Top (cm) in Barrel	Section Bottom (cm) in Barrel	Sample Code	Sample Top (cmbsf)	Sample Base (cmbsf)	Avg Depth (cmbsf)
9/24/2009	MITAS PS2009-09	PC-10	581	I	2	100	200	SED	425	426	426
9/24/2009	MITAS PS2009-09	PC-10	581	I	2	100	200	SED	430	431	431
9/24/2009	MITAS PS2009-09	PC-10	581	I	2	100	200	SED	454	455	455
9/24/2009	MITAS PS2009-09	PC-10	581	I	2	100	200	SED CAR	454	455	455
9/24/2009	MITAS PS2009-09	PC-10	581	I	1	200	293	SED	514	515	515
9/24/2009	MITAS PS2009-09	PC-10	581	I	1	200	293	SED	538	540	539
9/24/2009	MITAS PS2009-10	PC-11	560	II	6	0	100	SED	5	6	6
9/24/2009	MITAS PS2009-10	PC-11	560	II	6	0	100	SED	56	58	57
9/24/2009	MITAS PS2009-09	PC-11	560	II	5	100	200	SED	152	154	153
9/24/2009	MITAS PS2009-09	PC-11	560	II	5	100	200	SED	192	194	193
9/24/2009	MITAS PS2009-09	PC-11	560	II	4	0	66	SED	228	230	229
9/24/2009	MITAS PS2009-09	PC-11	560	I	3	200	300	SED	274	276	275
9/24/2009	MITAS PS2009-09	PC-11	560	I	3	200	300	SED	304	306	305
9/24/2009	MITAS PS2009-09	PC-11	560	I	2	100	200	SED	374	376	375
9/24/2009	MITAS PS2009-09	PC-11	560	I	2	100	200	SED	446	448	447
9/24/2009	MITAS PS2009-09	PC-11	560	I	1	0	93	SED	480	481	481
9/24/2009	MITAS PS2009-09	PC-11	560	I	1	0	93	SED	539	540	540
9/24/2009	MITAS PS2009-09	PC-12	598	II	6	0	100	SED	28	29	29
9/24/2009	MITAS PS2009-09	PC-12	598	II	6	0	100	SED	80	82	81
9/24/2009	MITAS PS2009-09	PC-12	598	II	5	100	200	SED	118	120	119
9/24/2009	MITAS PS2009-09	PC-12	598	II	5	100	200	SED	154	156	155
9/24/2009	MITAS PS2009-09	PC-12	598	II	4	200	295	SED	230	232	231
9/24/2009	MITAS PS2009-09	PC-12	598	II	4	200	295	SED	268	270	269
9/24/2009	MITAS PS2009-09	PC-12	598	I	3	0	100	SED	315	317	316
9/24/2009	MITAS PS2009-09	PC-12	598	I	3	0	100	SED	373	375	374
9/24/2009	MITAS PS2009-09	PC-12	598	I	2	100	200	SED	409	411	410
9/24/2009	MITAS PS2009-09	PC-12	598	I	2	100	200	SED	449	451	450
9/24/2009	MITAS PS2009-09	PC-12	598	I	1	200	303	SED	537	539	538
9/24/2009	MITAS PS2009-09	PC-12	598	I	1	200	303	SED	593	594	594
9/24/2009	MITAS PS2009-09	PC-13	591	II	7	0	100	SED	17	18	18
9/24/2009	MITAS PS2009-09	PC-13	591	II	6	100	200	SED	122	124	123
9/24/2009	MITAS PS2009-09	PC-13	591	II	6	100	200	SED	176	178	177
9/24/2009	MITAS PS2009-09	PC-13	591	II	7	0	100	SED	78	80	79
9/24/2009	MITAS PS2009-09	PC-13	591	II	5	200	296	SED	212	214	213
9/24/2009	MITAS PS2009-09	PC-13	591	II	5	200	296	SED	291	293	292
9/24/2009	MITAS PS2009-09	PC-13	591	I	4	0	100	SED	309	311	310
9/24/2009	MITAS PS2009-09	PC-13	591	I	4	0	100	SED	353	354	354
9/24/2009	MITAS PS2009-09	PC-13	591	I	3	100	200	SED	410	412	411
9/24/2009	MITAS PS2009-09	PC-13	591	I	3	100	200	SED	432	434	433
9/24/2009	MITAS PS2009-09	PC-13	591	I	2	200	295	SED	498	500	499
9/24/2009	MITAS PS2009-09	PC-13	591	I	2	200	295	SED	532	534	533
9/24/2009	MITAS PS2009-09	PC-13	591	I	1	200	295	SED 143	577	579	578
9/24/2009	MITAS PS2009-09	PC-14	633	III	7	0	38	SED	8	10	9
9/24/2009	MITAS PS2009-09	PC-14	633	II	6	0	100	SED	66	68	67
9/24/2009	MITAS PS2009-09	PC-14	633	II	6	0	100	SED	108	110	109
9/24/2009	MITAS PS2009-09	PC-14	633	II	5	100	205	SED	176	178	177
9/24/2009	MITAS PS2009-09	PC-14	633	II	5	100	205	SED	226	228	227
9/24/2009	MITAS PS2009-10	PC-14	633	II	4	205	305	SED	266	268	267
9/24/2009	MITAS PS2009-11	PC-14	633	II	4	205	305	SED	312	314	313
9/24/2009	MITAS PS2009-09	PC-14	633	I	3	0	100	SED	383	385	384
9/24/2009	MITAS PS2009-09	PC-14	633	I	3	0	100	SED	423	425	424
9/24/2009	MITAS PS2009-09	PC-14	633	I	2	100	200	SED	463	465	464
9/24/2009	MITAS PS2009-09	PC-14	633	I	2	100	200	SED	499	501	500
9/24/2009	MITAS PS2009-09	PC-14	633	I	1	200	290	SED	563	565	564
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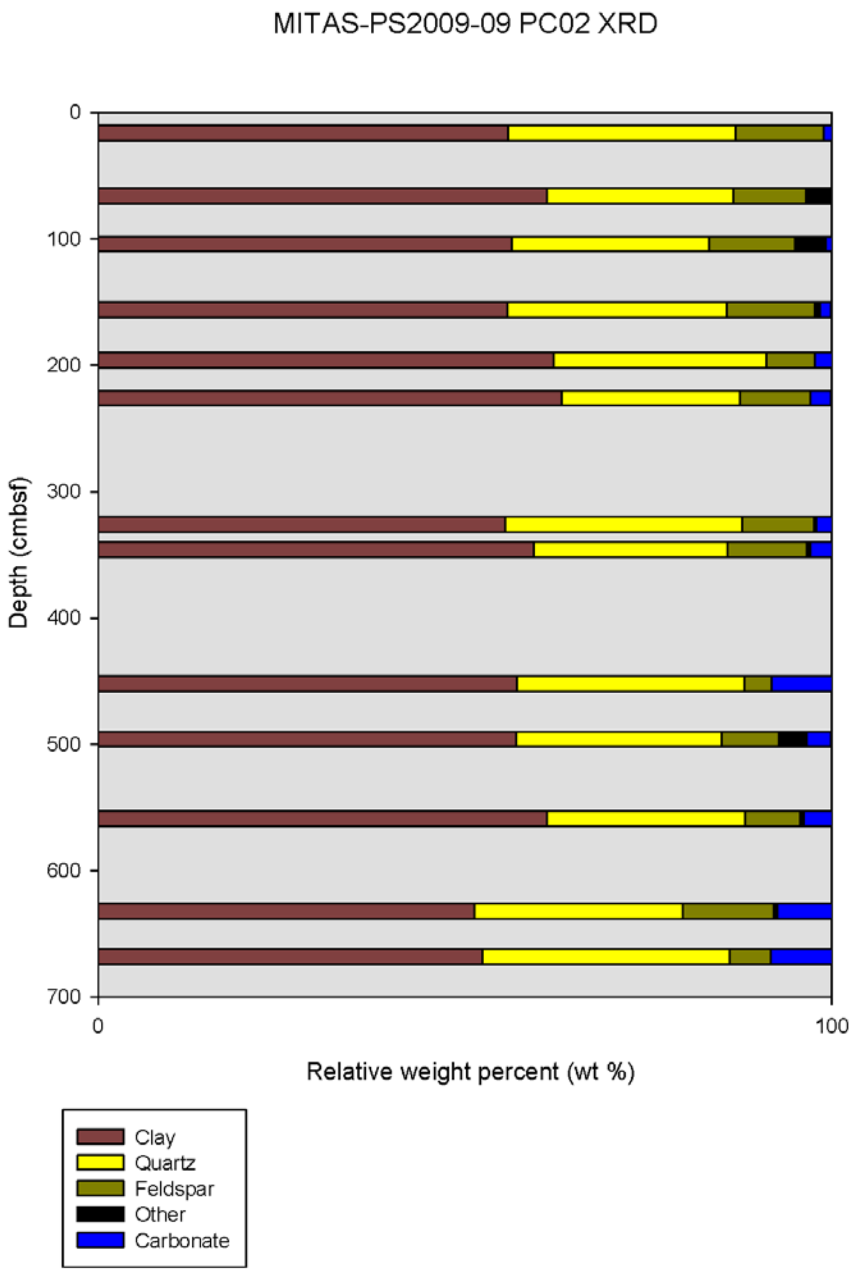
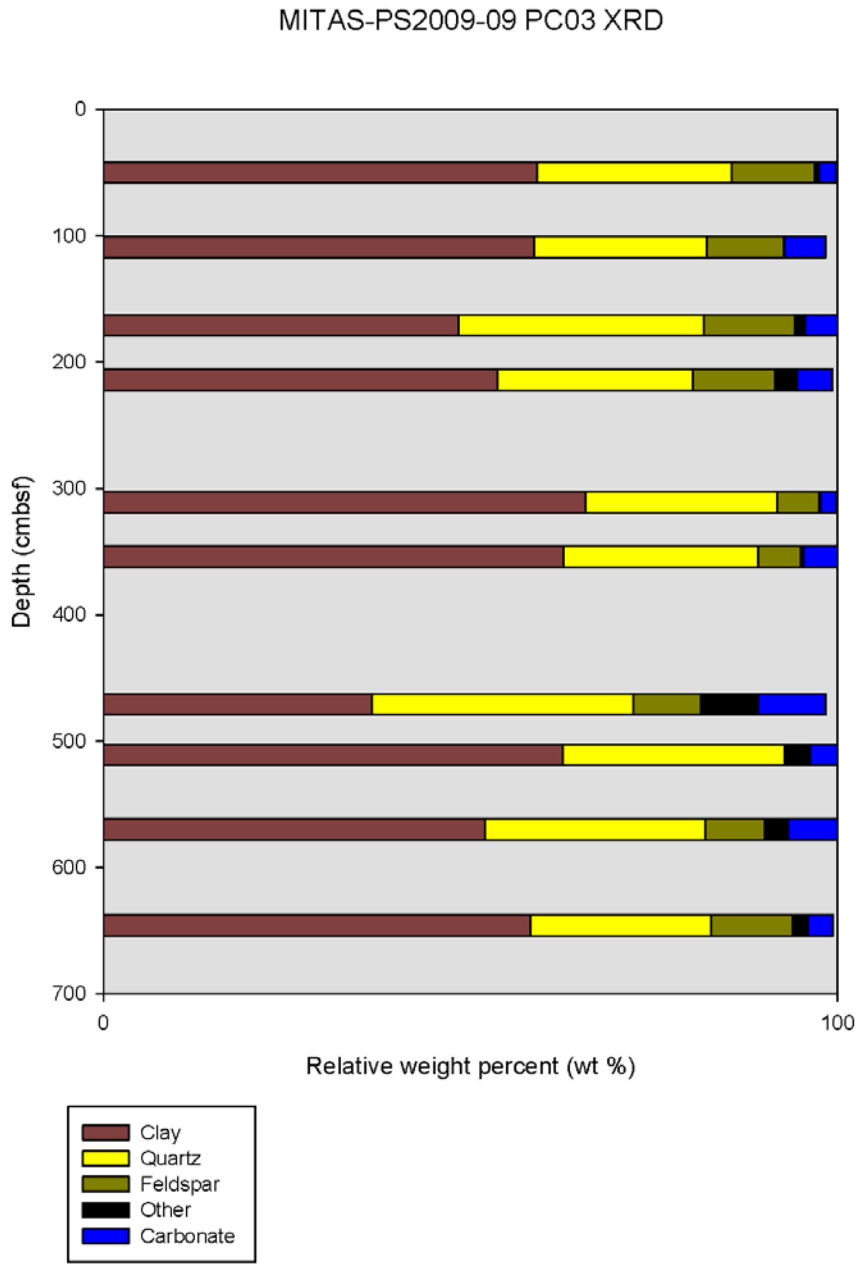
APPENDIX 4 MITAS-2009 XRD PLOTS

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Depth (cmbsf)
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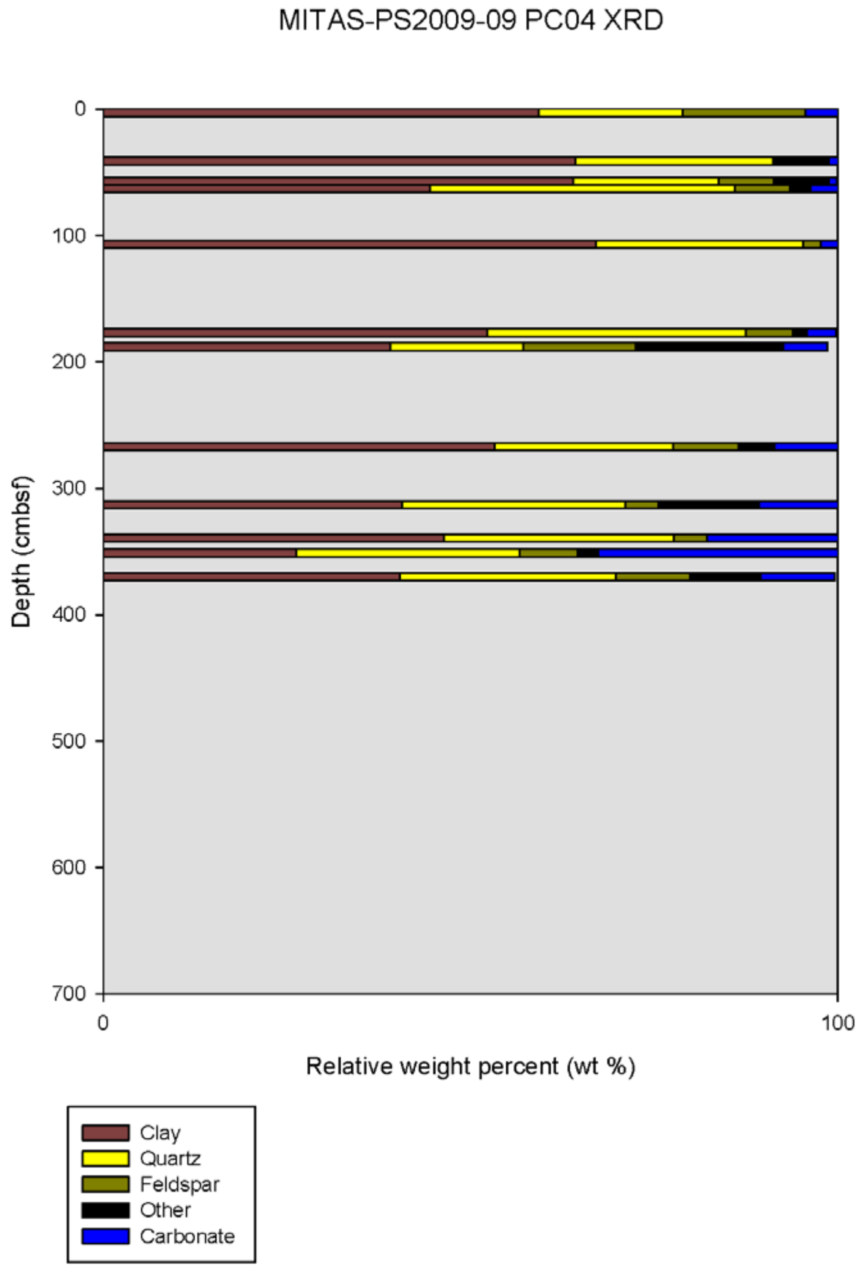
Relative weight percent (wt %)
Clay
Quartz
Feldspar
Other
Carbonate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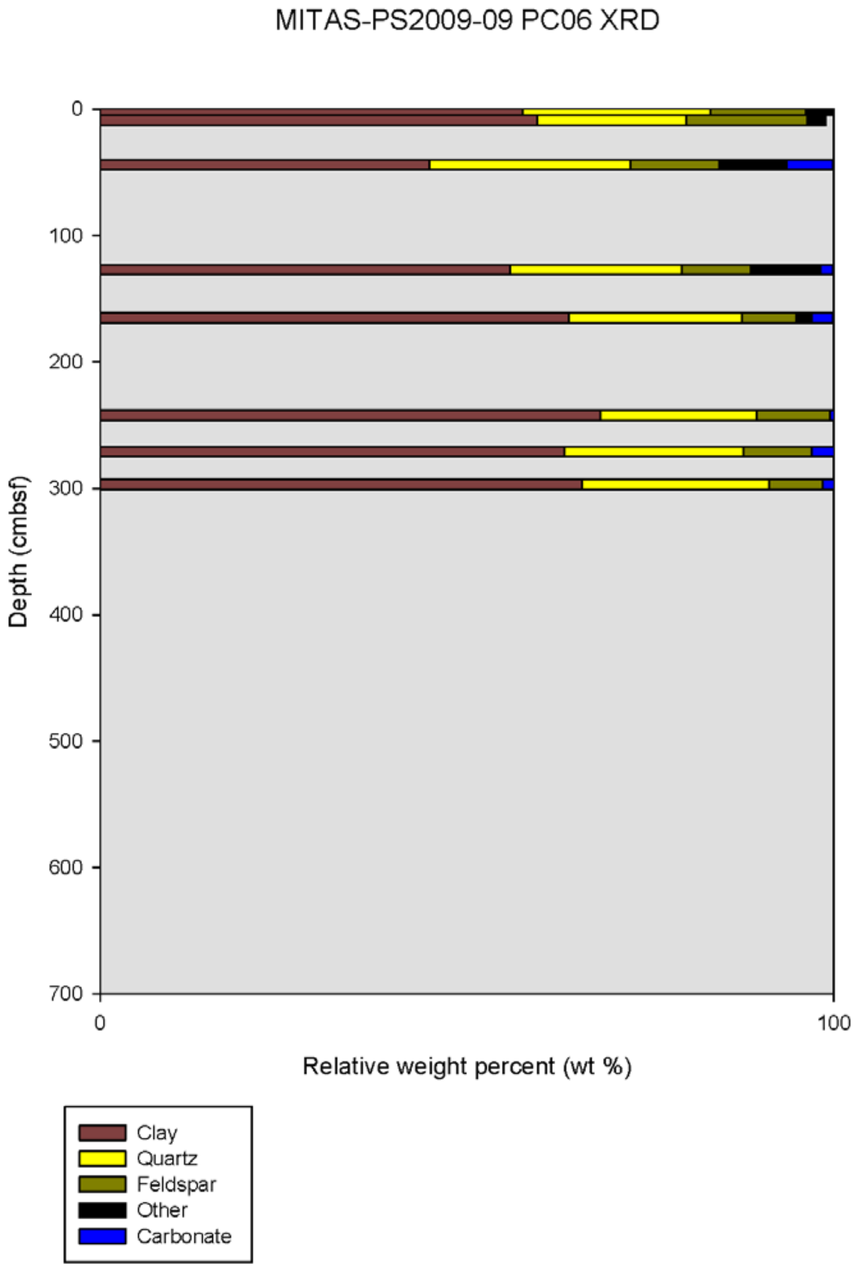
Clay
Quartz
Feldspar
Other
Carbonate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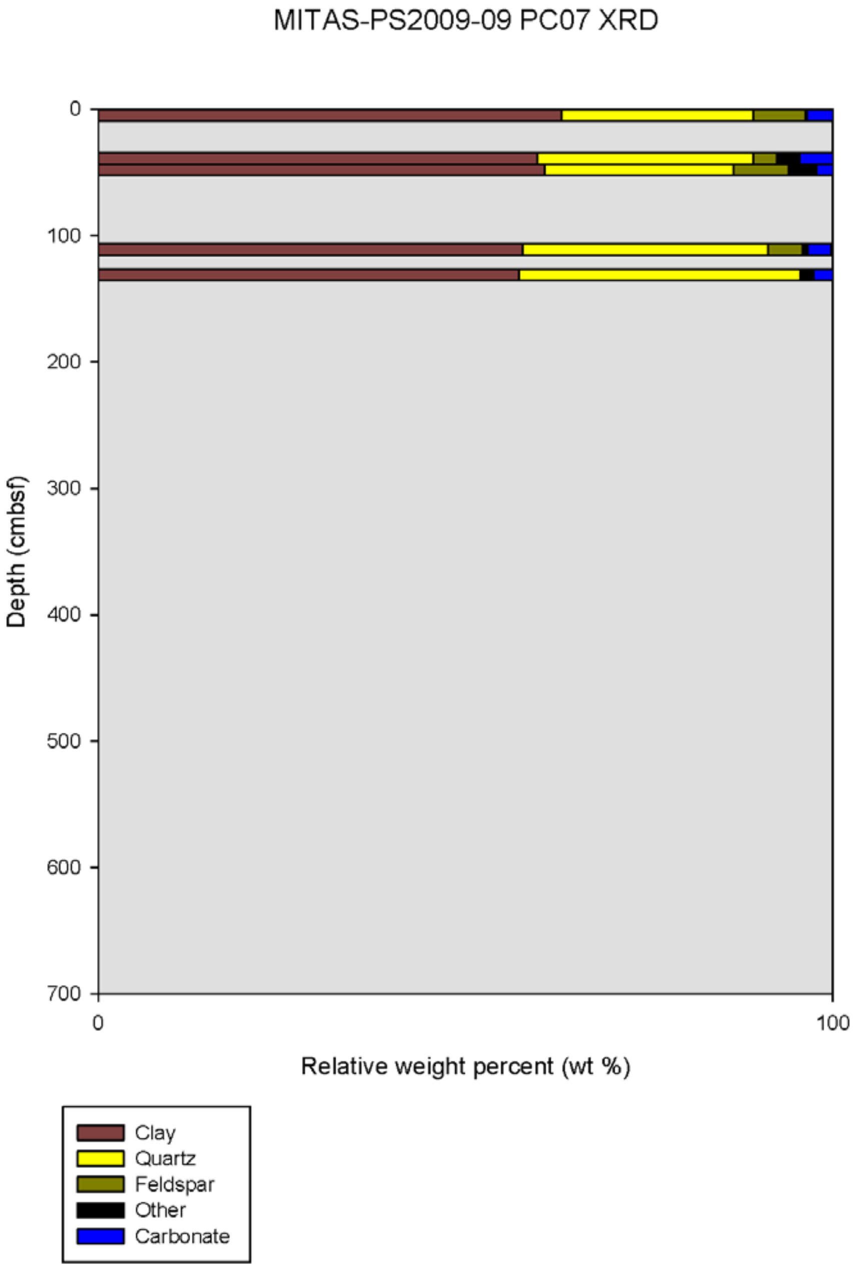
Relative weight percent (wt %)
Clay
Quartz
Feldspar
Other
Carbonate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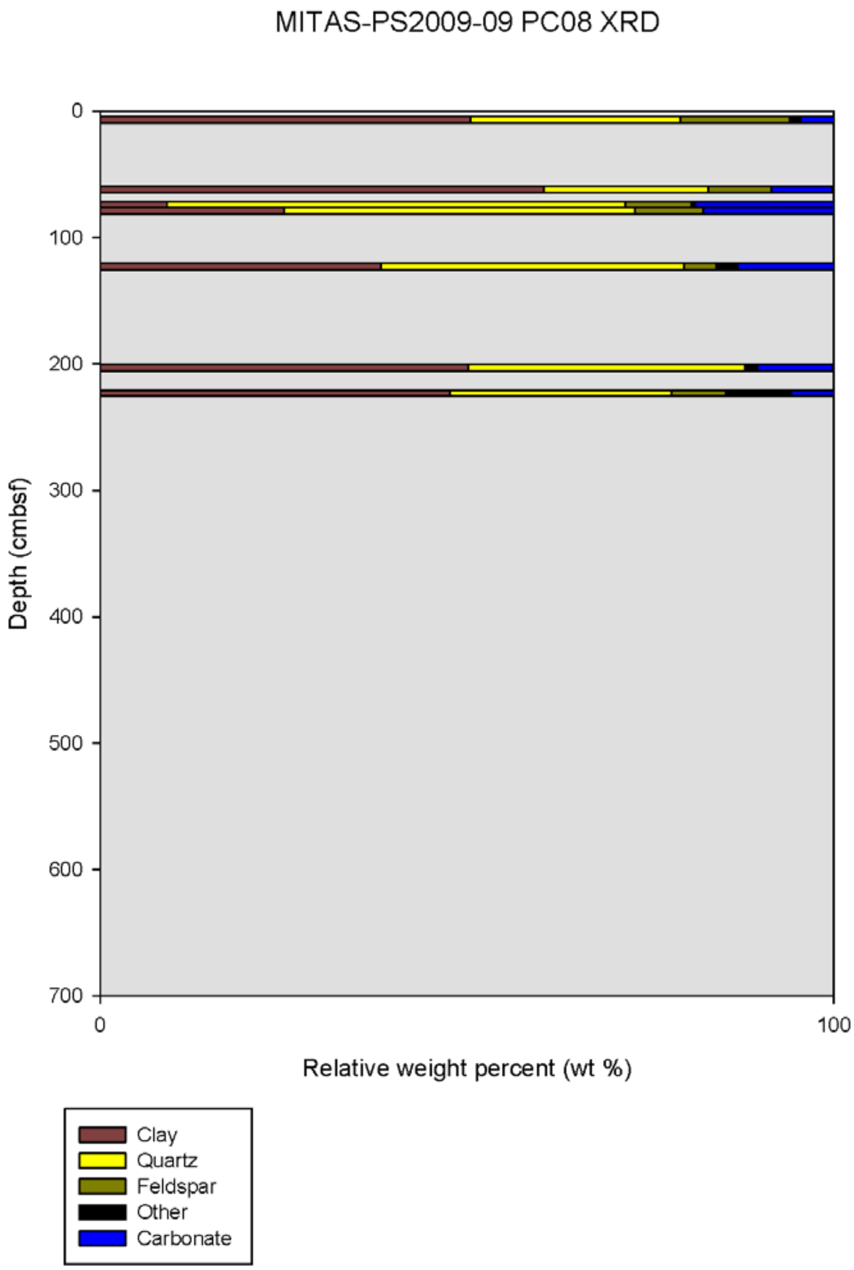
Clay
Quartz
Feldspar
Other
Carbonate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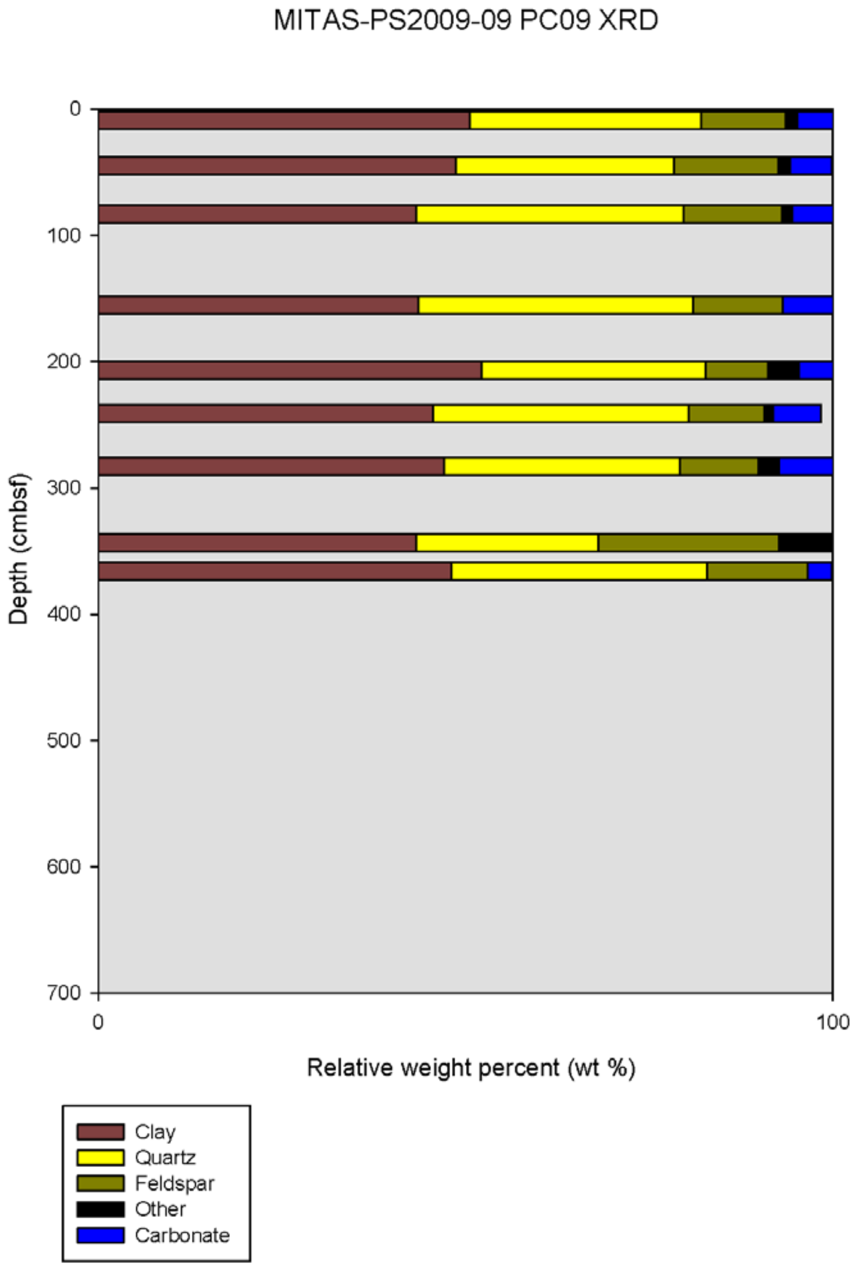
Relative weight percent (wt %)
Clay
Quartz
Feldspar
Other
Carbonate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Depth (cmbsf)
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700
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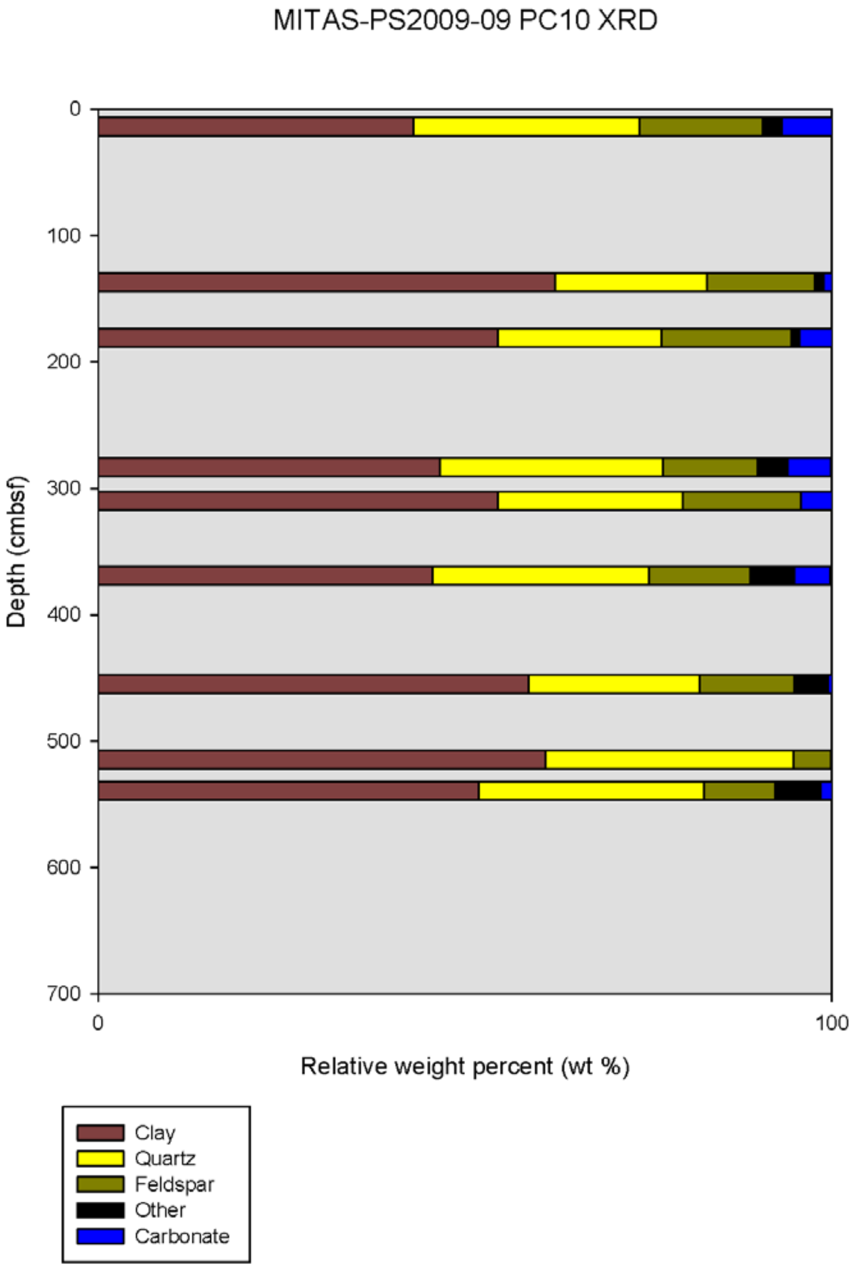
Relative weight percent (wt %)
Clay
Quartz
Feldspar
Other
Carbonate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Relative weight percent (wt %)
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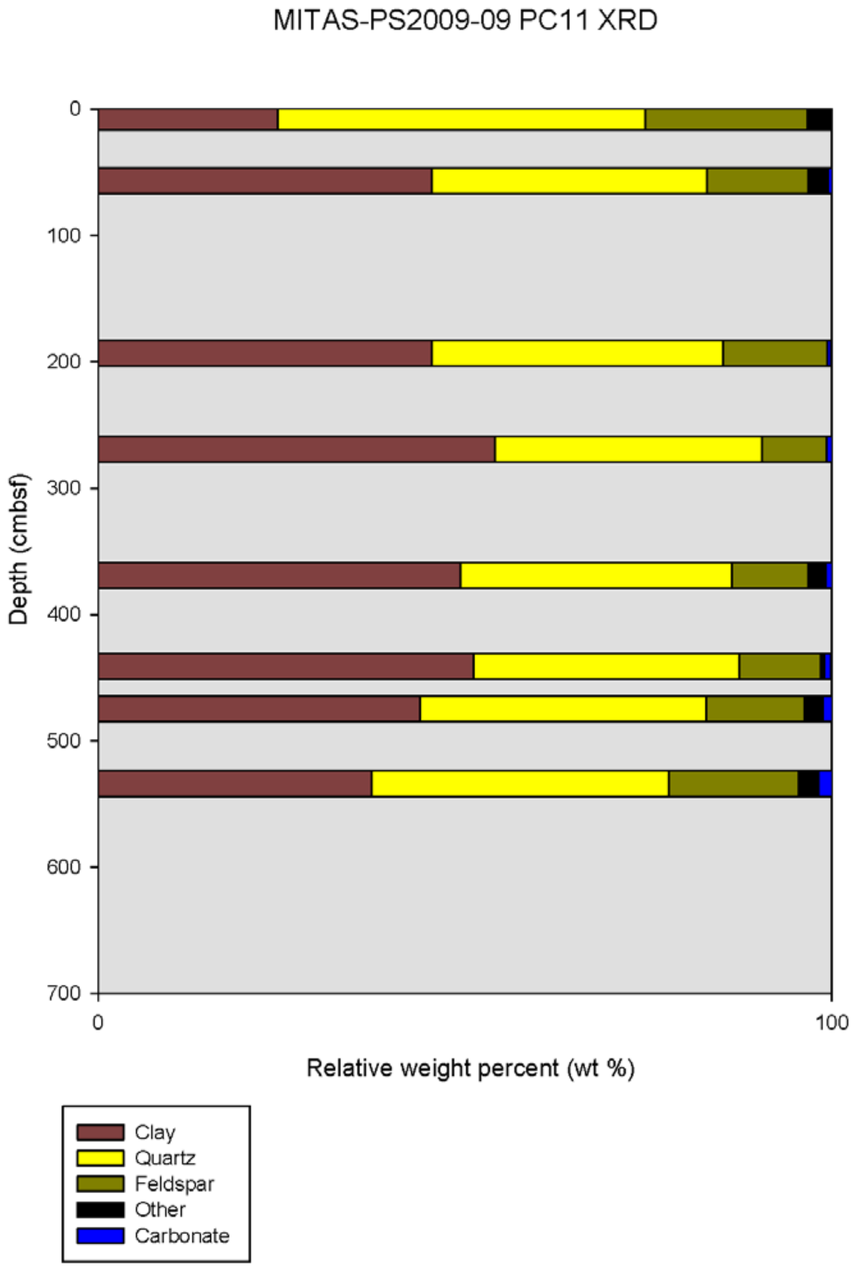
Quartz
Feldspar
Other
Carbonate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Depth (cmbsf)
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400
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700
0
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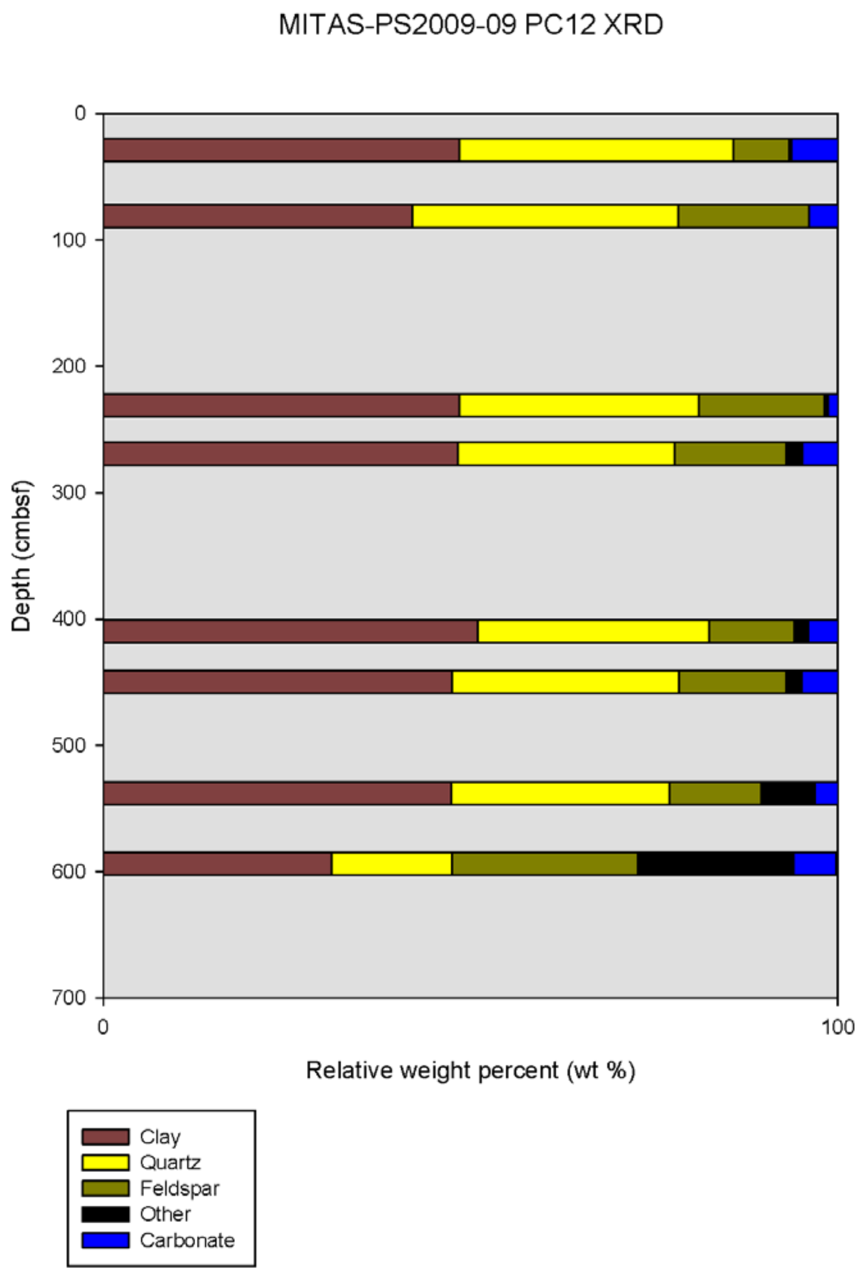
Relative weight percent (wt %)
Clay
Quartz
Feldspar
Other
Carbonate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Relative weight percent (wt %)
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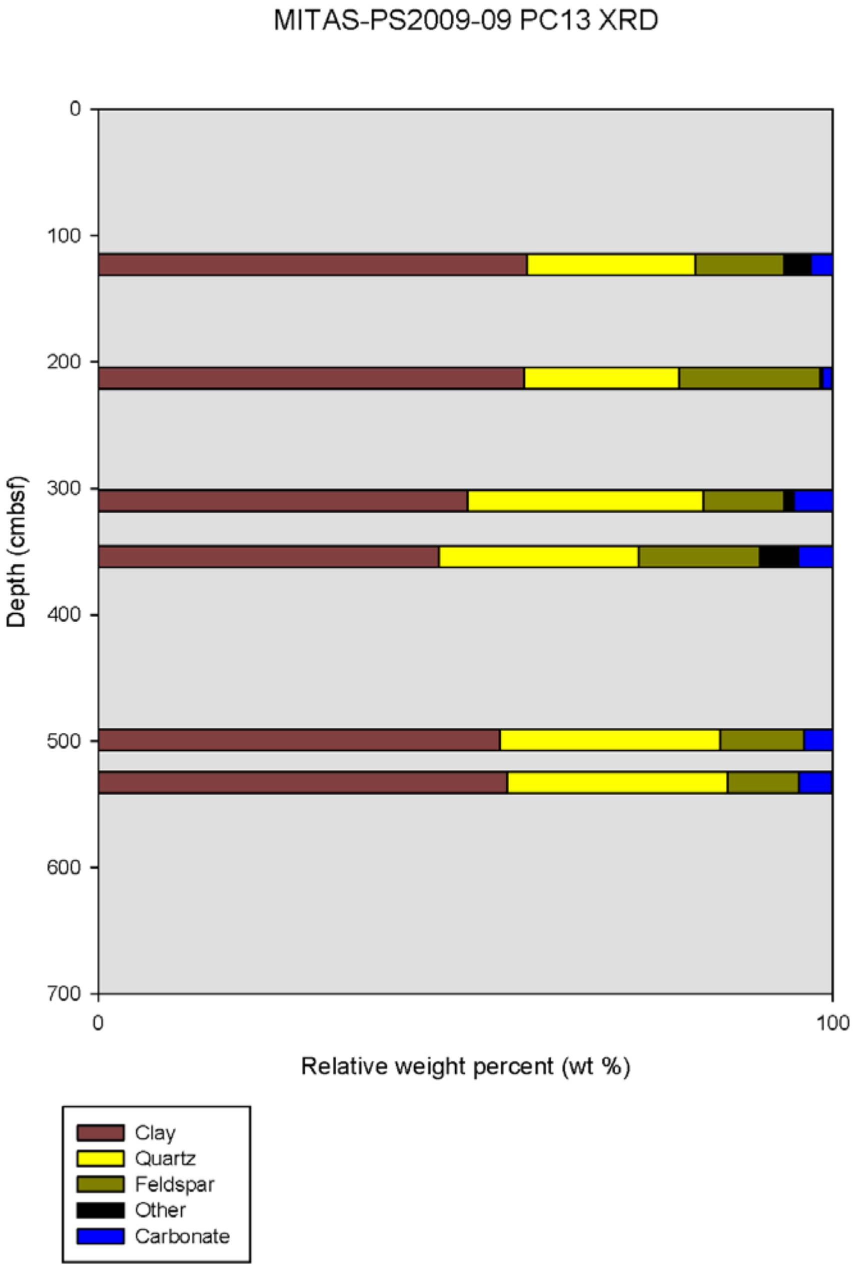
Quartz
Feldspar
Other
Carbonate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Depth (cmbsf)
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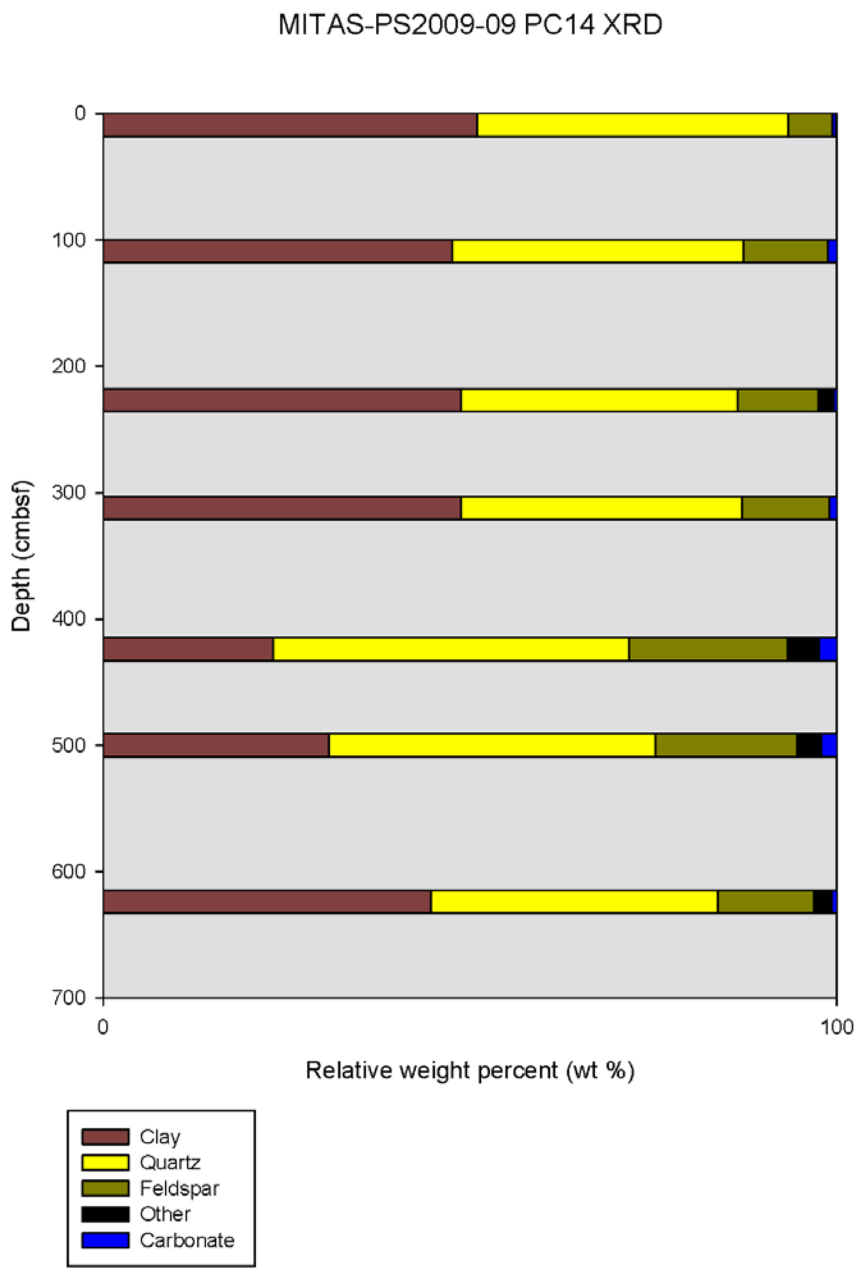
Relative weight percent (wt %)
Clay
Quartz
Feldspar
Other
Carbonate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200
300
400
500
600
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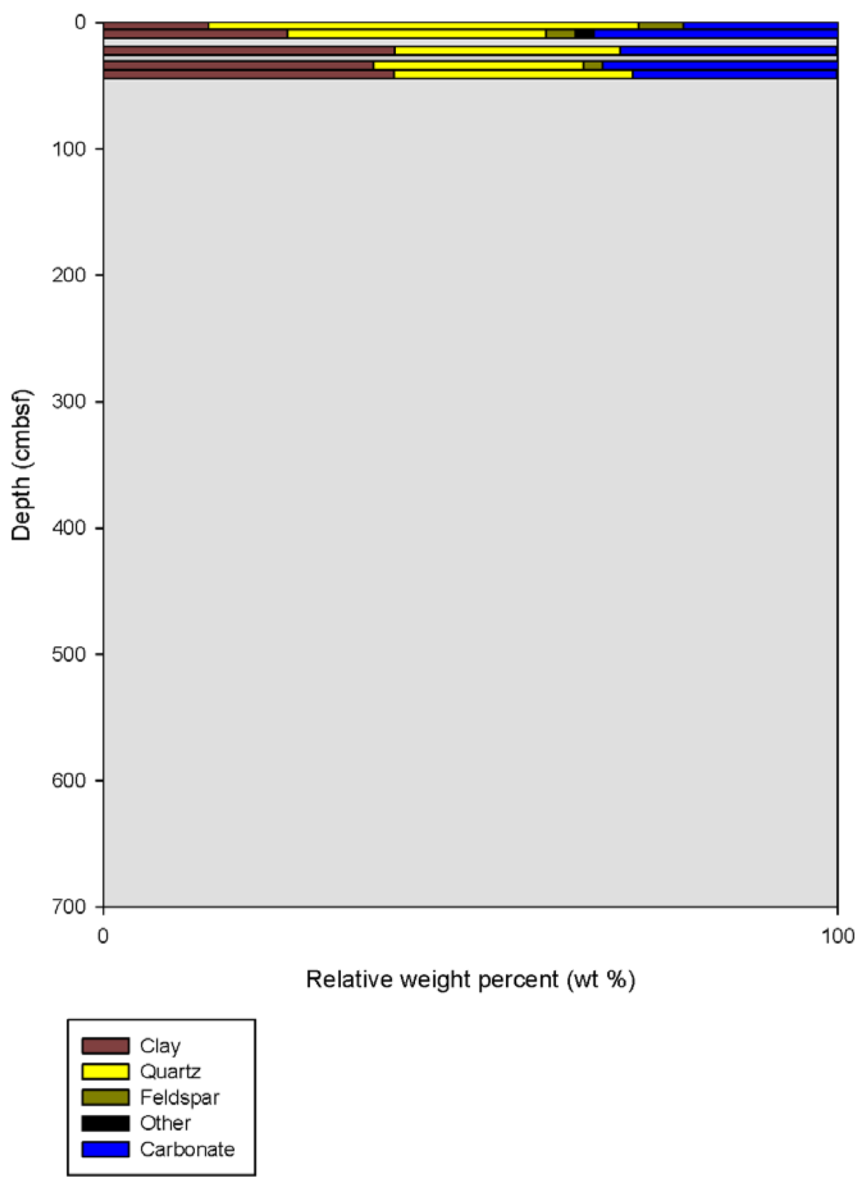
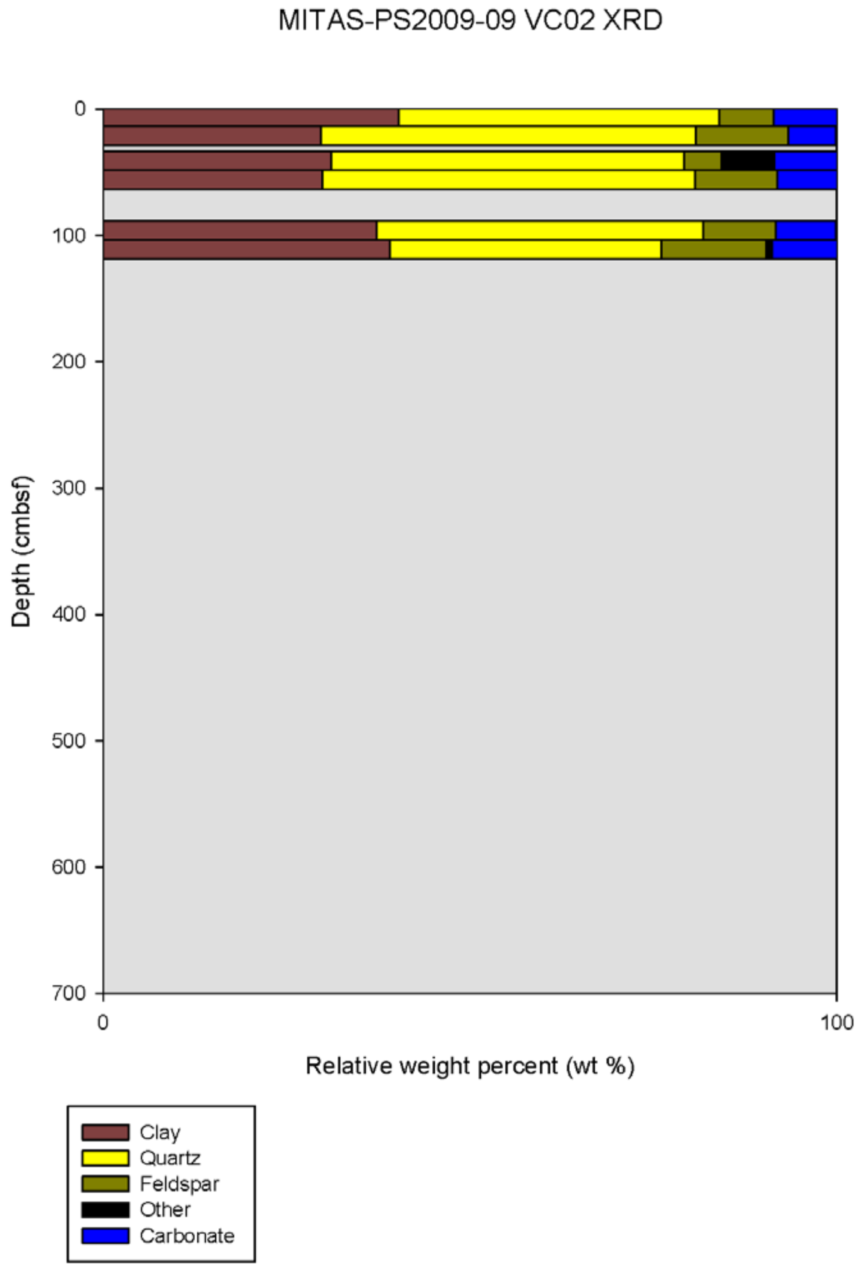
0
100
Relative weight percent (wt %)
Clay
Quartz
Feldspar
Other
Carbonate

MITAS-PS2009-09 VC01 XRD




MITAS-PS2009-09 VC02 XRD
Depth (cmbsf)
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500
600
700
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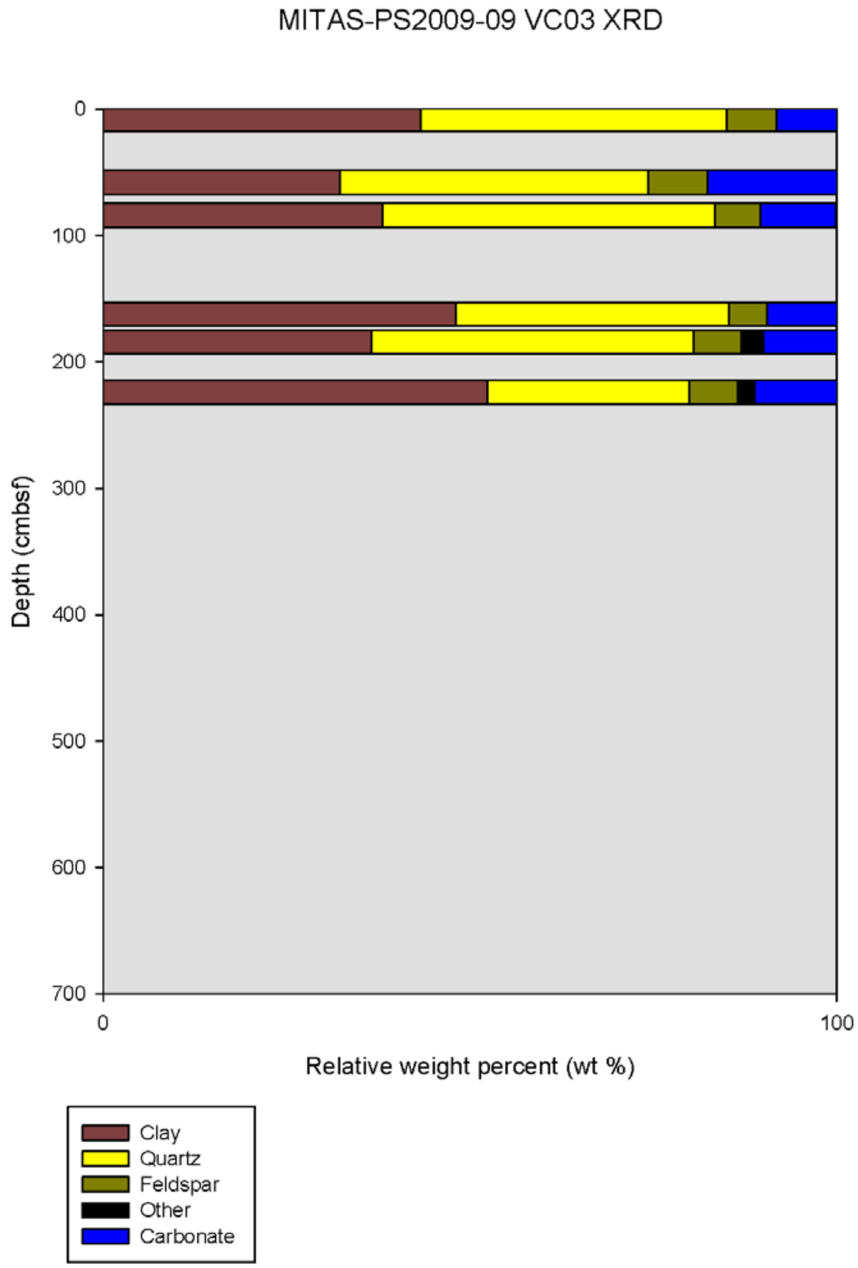
100
Relative weight percent (wt %)
Clay
Quartz
Feldspar
Other
Carbonate


MITAS-PS2009-09 VC03 XRD
Depth (cmbsf)
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100
200
300
400
500
600
700
0
100
Relative weight percent (wt %)
Clay
Quartz
Feldspar
Other
Carbonate

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