

2.13 Monthly TOA/Surface Averages (SRBAVG)

The SRBAVG product contains monthly and monthly hourly regional, zonal, and global averages of the TOA and surface LW and SW fluxes and the observed cloud conditions for each 1-degree equal-angle region. This product differs from the AVG product in three ways. First, the surface fluxes have been calculated from the TOA fluxes using parameterizations provided by the science team, instead of using the models provided by the SARB Subsystem. Secondly, no flux fields are calculated at levels between TOA and the surface. Lastly, the regional TOA fluxes are calculated using two methods.

SRBAVG is an archival product produced by Subsystem 10. There is one produced for each spacecraft and one for each combination of spacecraft. This product is written in HDF and contains metadata as well as gridded science data.

SRBAVG is composed of the following structures contained in three separate files (SRBAVG1, SRBAVG2, SRBAVG3):

On a Regional, Zonal, and Global Basis:

- Regional parameters (SRBAVG1)
- Total-sky radiative fluxes at TOA and surface (SRBAVG1)
- Clear-sky radiative fluxes at TOA and surface (SRBAVG1)
- Surface data (SRBAVG1)
- CERES and GEO Layer-averaged cloud properties (SRBAVG2)
- CERES Layer-averaged cloud properties (SRBAVG3)

A complete listing of metadata and gridded science parameters for this data product can be found in [Table 2.13-1](#) through [Table 2.13-21\(a\) & \(b\)](#).

Level: 3

Frequency: 1/Month

Portion of Atmosphere Covered: Surface and TOA

Time Interval Covered:

File: 1 Month

Record: 1 Month

Portion of Globe Covered:

File: Entire Global

Record: 1-Deg Regions

Product Version:

TRMM: Edition2B

Terra: Edition2C, Edition2D

Aqua: Edition2A

SRBAVG Metadata

The types of SRBAVG metadata are summarized in [Table 2.13-1](#) and contain information which need only be recorded once per product. The CERES metadata are listed in [Appendix B](#). [Table B-1](#) lists the CERES Baseline Header Metadata and [Table B-2](#) lists the CERES_metadata Vdata.

Table 2.13-1. SRBAVG Metadata Summary

HDF Name	Description Table	Records	Number of Fields
CERES Baseline Header Metadata	Table B-1	1	36
CERES_metadata Science Data	Table B-2	1	14

All of the SRBAVG science data are organized into the HDF Grid data type and are contained in three files: SRBAVG1, SRBAVG2 and SRBAVG3, which are shown in [Table 2.13-5](#) through [Table 2.13-21\(a\)](#) & (b) below. Each table contains a list of the parameters within each grid, including the field number, the field name, the data type, the units, the range, and the number of elements within each field.

SRBAVG Scientific Data Sets

[Table 2.13-2](#) List of the Vgroups for different Gridded Categories.

Table 2.13-2. Gridded Categories of SRBAVG1, SRBAVG2 and SRBAVG3

Vgroup Number	Vgroup Name	Description	Number of Records
1	1.0 Degree Regional	See Table 2.13-3	64800
2	1.0 Degree Zonal	See Table 2.13-3	180
3	Global	See Table 2.13-3	1

[Table 2.13-3](#) List of the Vgroups contained in 1.0 Degree Regional, 1.0 Degree Zonal and Global Vgroups.

Table 2.13-3. Temporal Vgroups of SRBAVG1, SRBAVG2 and SRBAVG3

Vgroup Number	Vgroup Name	Monthly Hourly Averages / Monthly (Hour) Averages
1	Monthly Hourly Averages	See Table 2.13-4 for SRBAVG1 See Table 2.13-5 for SRBAVG2 and SRBAVG3
2	Monthly Averages	See Table 2.13-4 for SRBAVG1 See Table 2.13-5 for SRBAVG2 and SRBAVG3

Table 2.13-4 List of the Vgroups contained in the Monthly Hourly Averages and Monthly Averages Vgroups in SRBAVG1.

Table 2.13-4. Temporal Vgroups of SRBAVG1

Vgroup Number	Vgroup Name	Monthly Hourly Averages / Monthly (Hour) Averages
1	Region parameters	See Table 2.13-6(a) & (b)
2	TOA Fluxes	See Table 2.13-7
3	Surface Fluxes	See Table 2.13-13(a) & (b)
4	Surface Data	See Table 2.13-19(a) & (b)

Table 2.13-5 List of the Vgroups contained in Monthly Hourly Averages and Monthly Averages Vgroups in SRBAVG2 (CERES and GEO Layer Cloud Properties) and SRBAVG3 (CERES Layer Cloud Properties).

Table 2.13-5. Temporal Vgroup of SRBAVG2 and SRBAVG3

Vgroup Number	Vgroup Name	Monthly Hourly Averages / Monthly (Hour) Averages
1	CERES and GEO Layer Cloud Properties	See Table 2.13-20
2	CERES Layer Cloud Properties	See Table 2.13-20

Table 2.13-6(a) and (b) List of the SDSs contained in the Regional Parameters Vgroup.

Table 2.13-6(a). Region Parameters in SRBAVG1

SDS Name	Data Type	Units	Range	No. of Elements
Region Number	4-Bit Integer	unitless	0.0 .. 44640	1
Colatitude	32-Bit Float	degree	0.0 .. 180.0	1
Longitude	32-Bit Float	degree	0.0 .. 360.0	1
Surface Type Percent Coverage	32-Bit Float	percent	0.0 .. 100.0	20
Surface Altitude	32-Bit Float	m	-1000.0 .. 10000	1
Snow/Ice Percent Coverage	32-Bit Float	percent	0.0 .. 100.0	1
Precipitable Water	32-Bit Float	cm	0.0001 .. 10.0	1
Total Aerosol Visible Optical Depth @0.63 microns	32-Bit Float	μm	0.0 .. 2.0	1
Total Aerosol Visible Optical Depth @1.6 microns	32-Bit Float	μm	0.0 .. 2.0	1

Table 2.13-6(b). SDS Index of Region Parameters in SRBAVG1

SDS Name	Regional Monthly Hourly	Regional Monthly	Zonal Monthly Hourly	Zonal Monthly	Global Monthly Hourly	Global Monthly
Region Number	0	59	118	167	216	265
Colatitude	1	60	119	168	217	266
Longitude	2	61	120	169	218	267
Surface Type Percent Coverage	3	62	121	170	219	268
Surface Altitude	4	63	122	171	220	269
Snow/Ice Percent Coverage	5	64	123	172	221	270
Precipitable Water	6	65	124	173	222	271
Total Aerosol Visible Optical Depth @0.63 microns	7	66	125	174	223	272
Total Aerosol Visible Optical Depth @1.6 microns	8	67	126	175	224	273

Table 2.13-7 List of the Vgroups contained in the TOA Fluxes Vgroup.

Table 2.13-7. TOA Fluxes in SRBAVG1

Vgroup Number	Vgroup Name	Monthly Hourly Averages / Monthly (Hour) Averages
1	Clear-Sky Raw Data Average	See Table 2.13-8(a) & (b)
2	Total-Sky Raw Data Average	See Table 2.13-9(a) & (b)
3	Clear-Sky non-GEO Method	See Table 2.13-10(a) & (b)
4	Total-Sky non-GEO Method	See Table 2.13-11(a) & (b)
5	Clear-Sky GEO Method	See Table 2.13-12(a) & (b)
6	Total-Sky GEO Method	See Table 2.13-13(a) & (b)

Table 2.13-8(a) & (b) List of the SDSs contained in the Clear-Sky Raw Data Average Vgroup.

Table 2.13-8(a). Clear-Sky Raw Data Average in SRBAVG1

SDS Name	Data Type	Units	Range	No. of Elements Monthly Hourly	No. of Elements Monthly
Clear-sky TOA SW Flux - Raw Data Average	32-Bit Float	Wm ⁻²	0.0 .. 800.0	72	3
Clear-sky TOA LW Flux - Raw Data Average	32-Bit Float	Wm ⁻²	0.0 .. 400.0	72	3

Table 2.13-8(a). Clear-Sky Raw Data Average in SRBAVG1

SDS Name	Data Type	Units	Range	No. of Elements Monthly Hourly	No. of Elements Monthly
Clear-sky TOA WN Flux - Raw Data Average	32-Bit Float	Wm ⁻²	0.0 .. 800.0	72	3
Clear-sky TOA Albedo - Raw Data Average	32-Bit Float	N/A	0.0 .. 1.0	72	3
Clear-sky TOA Net Flux - Raw Data Average	32-Bit Float	Wm ⁻²	-300.0 .. 400.0	72	3

Table 2.13-8(b). SDS Index of Clear-Sky Raw Data Average in SRBAVG1

SDS Name	Regional Monthly Hourly	Regional Monthly
Clear-sky TOA SW Flux - Raw Data Average	9	68
Clear-sky TOA LW Flux - Raw Data Average	10	69
Clear-sky TOA WN Flux - Raw Data Average	11	70
Clear-sky TOA Albedo - Raw Data Average	12	71
Clear-sky TOA Net Flux - Raw Data Average	13	72

Table 2.13-9(a) & (b) List of the SDSs contained in the Total-Sky Raw Data Average Vgroup.

Table 2.13-9(a). Total-Sky Raw Data Average in SRBAVG1

SDS Name	Data Type	Units	Range	No. of Elements Monthly Hourly	No. of Elements Monthly
Total-sky TOA SW Flux - Raw Data Average	32-Bit Float	Wm ⁻²	0.0 .. 800.0	72	3
Total-sky TOA LW Flux - Raw Data Average	32-Bit Float	Wm ⁻²	0.0 .. 400.0	72	3
Total-sky TOA WN Flux - Raw Data Average	32-Bit Float	Wm ⁻²	0.0 .. 800.0	72	3
Total-sky TOA Albedo - Raw Data Average	32-Bit Float	N/A	0.0 .. 1.0	72	3
Total-sky TOA Net Flux - Raw Data Average	32-Bit Float	Wm ⁻²	-300.0 .. 400.0	72	3

Table 2.13-9(b). SDS Index of Total-Sky Raw Data Average in SRBAVG1

SDS Name	Regional Monthly Hourly	Regional Monthly
Total-sky TOA SW Flux - Raw Data Average	14	73
Total-sky TOA LW Flux - Raw Data Average	15	74
Total-sky TOA WN Flux - Raw Data Average	16	75
Total-sky TOA Albedo - Raw Data Average	17	76
Total-sky TOA Net Flux - Raw Data Average	18	77

Table 2.13-10(a) & (b) List of the SDSs contained in the Clear-Sky non-GEO Method Vgroup.

Table 2.13-10(a). Clear-Sky non-GEO Method in SRBAVG1

SDS Name	Data Type	Units	Range	No. of Elements Monthly Hourly	No. of Elements Monthly
Clear-sky TOA SW Flux - non-GEO Interpolation	32-Bit Float	Wm ⁻²	0.0 .. 800.0	72	3
Clear-sky TOA LW Flux - non-GEO Interpolation	32-Bit Float	Wm ⁻²	0.0 .. 400.0	72	3
Clear-sky TOA WN Flux - non-GEO Interpolation	32-Bit Float	Wm ⁻²	0.0 .. 800.0	72	3
Clear-sky TOA Albedo - non-GEO Interpolation	32-Bit Float	N/A	0.0 .. 1.0	72	3
Clear-sky TOA Net Flux - non-GEO Interpolation	32-Bit Float	Wm ⁻²	-300.0 .. 400.0	72	3

Table 2.13-10(b). SDS Index of Clear-Sky non-GEO Method in SRBAVG1

SDS Name	Regional Monthly Hourly	Regional Monthly	Zonal Monthly Hourly	Zonal Monthly	Global Monthly Hourly	Global Monthly
Clear-sky TOA SW Flux - non-GEO Interpolation	19	78	127	176	225	274
Clear-sky TOA LW Flux - non-GEO Interpolation	20	79	128	177	226	275
Clear-sky TOA WN Flux - non-GEO Interpolation	21	80	129	178	227	276

Table 2.13-10(b). SDS Index of Clear-Sky non-GEO Method in SRBAVG1

SDS Name	Regional Monthly Hourly	Regional Monthly	Zonal Monthly Hourly	Zonal Monthly	Global Monthly Hourly	Global Monthly
Clear-sky TOA Albedo - non-GEO Interpolation	22	81	130	179	228	277
Clear-sky TOA Net Flux - non-GEO Interpolation	23	82	131	180	229	278

Table 2.13-11(a) & (b) List of the SDSs contained in the Total-Sky non-GEO Method Vgroup.

Table 2.13-11(a). Total-Sky non-GEO Method in SRBAVG1

SDS Name	Data Type	Units	Range	No. of Elements Monthly Hourly	No. of Elements Monthly
Total-sky TOA SW Flux - non-GEO Interpolation	32-Bit Float	Wm ⁻²	0.0 .. 800.0	72	3
Total-sky TOA LW Flux - non-GEO Interpolation	32-Bit Float	Wm ⁻²	0.0 .. 400.0	72	3
Total-sky TOA WN Flux - non-GEO Interpolation	32-Bit Float	Wm ⁻²	0.0 .. 800.0	72	3
Total-sky TOA Albedo - non-GEO Interpolation	32-Bit Float	N/A	0.0 .. 1.0	72	3
Total-sky TOA Net Flux - non-GEO Interpolation	32-Bit Float	Wm ⁻²	-300.0 .. 400.0	72	3

Table 2.13-11(b). SDS Index of Total-Sky non-GEO Method in SRBAVG1

SDS Name	Regional Monthly Hourly	Regional Monthly	Zonal Monthly Hourly	Zonal Monthly	Global Monthly Hourly	Global Monthly
Total-sky TOA SW Flux - non-GEO Interpolation	24	83	132	181	230	279
Total-sky TOA LW Flux - non-GEO Interpolation	25	84	133	182	231	280
Total-sky TOA WN Flux - non-GEO Interpolation	26	85	134	183	232	281
Total-sky TOA Albedo - non-GEO Interpolation	27	86	135	184	233	282
Total-sky TOA Net Flux - non-GEO Interpolation	28	87	136	185	234	283

Table 2.13-12(a) & (b) List of the SDSs contained in the Clear-Sky GEO Method Vgroup.

Table 2.13-12(a). Clear-Sky GEO Method in SRBAVG1

SDS Name	Data Type	Units	Range	No. of Elements Monthly Hourly	No. of Elements Monthly
Clear-sky TOA SW Flux - GEO Interpolation	32-Bit Float	Wm ⁻²	0.0 .. 800.0	72	3
Clear-sky TOA LW Flux - GEO Interpolation	32-Bit Float	Wm ⁻²	0.0 .. 400.0	72	3
Clear-sky TOA WN Flux - GEO Interpolation	32-Bit Float	Wm ⁻²	0.0 .. 800.0	72	3
Clear-sky TOA Albedo - GEO Interpolation	32-Bit Float	N/A	0.0 .. 1.0	72	3
Clear-sky TOA Net Flux - GEO Interpolation	32-Bit Float	Wm ⁻²	-300.0 .. 400.0	72	3

Table 2.13-12(b). SDS Index of Clear-Sky GEO Method in SRBAVG1

SDS Name	Regional Monthly Hourly	Regional Monthly	Zonal Monthly Hourly	Zonal Monthly	Global Monthly Hourly	Global Monthly
Clear-sky TOA SW Flux - GEO Interpolation	29	88	137	186	235	284
Clear-sky TOA LW Flux - GEO Interpolation	30	89	138	187	236	285
Clear-sky TOA WN Flux - GEO Interpolation	31	90	139	188	237	286
Clear-sky TOA Albedo - GEO Interpolation	32	91	140	189	238	287
Clear-sky TOA Net Flux - GEO Interpolation	33	92	141	190	239	288

Table 2.13-13(a) & (b) List of the SDSs contained in the Total-Sky GEO Method Vgroup.

Table 2.13-13(a). Total-Sky GEO Method in SRBAVG1

SDS Name	Data Type	Units	Range	No. of Elements Monthly Hourly	No. of Elements Monthly
Total-sky TOA SW Flux - GEO Interpolation	32-Bit Float	Wm ⁻²	0.0 .. 800.0	72	3

Table 2.13-13(a). Total-Sky GEO Method in SRBAVG1

SDS Name	Data Type	Units	Range	No. of Elements Monthly Hourly	No. of Elements Monthly
Total-sky TOA LW Flux - GEO Interpolation	32-Bit Float	Wm ⁻²	0.0 .. 400.0	72	3
Total-sky TOA WN Flux - GEO Interpolation	32-Bit Float	Wm ⁻²	0.0 .. 800.0	72	3
Total-sky TOA Albedo - GEO Interpolation	32-Bit Float	N/A	0.0 .. 1.0	72	3
Total-sky TOA Net Flux - GEO Interpolation	32-Bit Float	Wm ⁻²	-300.0 .. 400.0	72	3

Table 2.13-13(b). SDS Index of Total-Sky GEO Method in SRBAVG1

SDS Name	Regional Monthly Hourly	Regional Monthly	Zonal Monthly Hourly	Zonal Monthly	Global Monthly Hourly	Global Monthly
Total-sky TOA SW Flux - GEO Interpolation	34	93	142	191	240	289
Total-sky TOA LW Flux - GEO Interpolation	35	94	143	192	241	290
Total-sky TOA WN Flux - GEO Interpolation	36	95	144	193	242	291
Total-sky TOA Albedo - GEO Interpolation	37	96	145	194	243	292
Total-sky TOA Net Flux - GEO Interpolation	38	97	146	195	244	293

Table 2.13-14 List of the Vgroups contained in the Surface Fluxes Vgroup.

Table 2.13-14. Surface Fluxes in SRBAVG1

Vgroup Number	Vgroup Name	Monthly Hourly Averages / Monthly (Hour) Averages
1	Clear-Sky Net	See Table 2.13-15(a)
2	Total-Sky Net	See Table 2.13-16(a)
3	Clear-Sky Down	See Table 2.13-17(a)
4	Total-Sky Down	See Table 2.13-18(a)

Table 2.13-15(a) & (b) List of the SDSs contained in the Clear-Sky Net Vgroup.

Table 2.13-15(a). Clear-Sky Net in SRBAVG1

SDS Name	Data Type	Units	Range	No. of Elements Monthly Hourly	No. of Elements Monthly
Clear-sky Sfc Net SW Flux - Mod A	32-Bit Float	Wm ⁻²	0.0 .. 1400.0	72	3
Clear-sky Sfc Net SW Flux - Mod B	32-Bit Float	Wm ⁻²	0.0 .. 1400.0	72	3
Clear-sky Sfc Net LW Flux - Mod A	32-Bit Float	Wm ⁻²	-250.0 .. 50.0	72	3
Clear-sky Sfc Net LW Flux - Mod B	32-Bit Float	Wm ⁻²	-250.0 .. 50.0	72	3

Table 2.13-15(b). SDS Index of Clear-Sky Net in SRBAVG1

SDS Name	Regional Monthly Hourly	Regional Monthly	Zonal Monthly Hourly	Zonal Monthly	Global Monthly Hourly	Global Monthly
Clear-sky Sfc Net SW Flux - Mod A	39	98	147	196	245	294
Clear-sky Sfc Net SW Flux - Mod B	40	99	148	197	246	295
Clear-sky Sfc Net LW Flux - Mod A	41	100	149	198	247	296
Clear-sky Sfc Net LW Flux - Mod B	42	101	150	199	248	297

Table 2.13-16(a) & (b) List of the SDSs contained in the Total-Sky Net Vgroup.

Table 2.13-16(a). Total-Sky Net in SRBAVG1

SDS Name	Data Type	Units	Range	No. of Elements Monthly Hourly	No. of Elements Monthly
Total-sky Sfc Net SW Flux - Mod A	32-Bit Float	Wm ⁻²	0.0 .. 1400.0	72	3
Total-sky Sfc Net SW Flux - Mod B	32-Bit Float	Wm ⁻²	0.0 .. 1400.0	72	3
Total-sky Sfc Net LW Flux - Mod A	32-Bit Float	Wm ⁻²	-250.0 .. 50.0	72	3
Total-sky Sfc Net LW Flux - Mod B	32-Bit Float	Wm ⁻²	-250.0 .. 50.0	72	3

Table 2.13-16(b). SDS Index of Total-Sky Net in SRBAVG1

SDS Name	Regional Monthly Hourly	Regional Monthly	Zonal Monthly Hourly	Zonal Monthly	Global Monthly Hourly	Global Monthly
Total-sky Sfc Net SW Flux - Mod A	43	102	151	200	249	298
Total-sky Sfc Net SW Flux - Mod B	44	103	152	201	250	299

Table 2.13-16(b). SDS Index of Total-Sky Net in SRBAVG1

SDS Name	Regional Monthly Hourly	Regional Monthly	Zonal Monthly Hourly	Zonal Monthly	Global Monthly Hourly	Global Monthly
Total-sky Sfc Net LW Flux - Mod A	45	104	153	202	251	300
Total-sky Sfc Net LW Flux - Mod B	46	105	154	203	252	301

Table 2.13-17(a) & (b) List of the SDSs contained in the Clear-Sky Down Vgroup.

Table 2.13-17(a). Clear-Sky Down in SRBAVG1

SDS Name	Data Type	Units	Range	No. of Elements Monthly Hourly	No. of Elements Monthly
Clear-sky Sfc Down SW Flux - Mod A	32-Bit Float	Wm ⁻²	0.0 .. 1400.0	72	3
Clear-sky Sfc Down SW Flux - Mod B	32-Bit Float	Wm ⁻²	0.0 .. 1400.0	72	3
Clear-sky Sfc Down LW Flux - Mod A	32-Bit Float	Wm ⁻²	0.0 .. 700.0	72	3
Clear-sky Sfc Down LW Flux - Mod B	32-Bit Float	Wm ⁻²	0.0 .. 700.0	72	3
Clear-sky Sfc Down WN Flux - Mod A	32-Bit Float	Wm ⁻²	0.0 .. 700.0	72	3

Table 2.13-17(b). SDS Index of Clear-Sky Down in SRBAVG1

SDS Name	Regional Monthly Hourly	Regional Monthly	Zonal Monthly Hourly	Zonal Monthly	Global Monthly Hourly	Global Monthly
Clear-sky Sfc Down SW Flux - Mod A	47	106	155	204	253	302
Clear-sky Sfc Down SW Flux - Mod B	48	107	156	205	254	303
Clear-sky Sfc Down LW Flux - Mod A	49	108	157	206	255	304
Clear-sky Sfc Down LW Flux - Mod B	50	109	158	207	256	305
Clear-sky Sfc Down WN Flux - Mod A	51	110	159	208	257	306

Table 2.13-18(a) & (b) List of the SDSs contained in the Total-Sky Down Vgroup.

Table 2.13-18(a). Total-Sky Down in SRBAVG1

SDS Name	Data Type	Units	Range	No. of Elements Monthly Hourly	No. of Elements Monthly
Total-sky Sfc Down SW Flux - Mod A	32-Bit Float	Wm ⁻²	0.0 .. 1400.0	72	3
Total-sky Sfc Down SW Flux - Mod B	32-Bit Float	Wm ⁻²	0.0 .. 1400.0	72	3

Table 2.13-18(a). Total-Sky Down in SRBAVG1

SDS Name	Data Type	Units	Range	No. of Elements Monthly Hourly	No. of Elements Monthly
Total-sky Sfc Down LW Flux - Mod A	32-Bit Float	Wm ⁻²	0.0 .. 700.0	72	3
Total-sky Sfc Down LW Flux - Mod B	32-Bit Float	Wm ⁻²	0.0 .. 700.0	72	3
Total-sky Sfc Down WN Flux - Mod A	32-Bit Float	Wm ⁻²	0.0 .. 700.0	72	3

Table 2.13-18(b). SDS Index of Total-Sky Down in SRBAVG1

SDS Name	Regional Monthly Hourly	Regional Monthly	Zonal Monthly Hourly	Zonal Monthly	Global Monthly Hourly	Global Monthly
Total-sky Sfc Down SW Flux - Mod A	52	111	160	209	258	307
Total-sky Sfc Down SW Flux - Mod B	53	112	161	210	259	308
Total-sky Sfc Down LW Flux - Mod A	54	113	162	211	260	309
Total-sky Sfc Down LW Flux - Mod B	55	114	163	212	261	310
Total-sky Sfc Down WN Flux - Mod A	56	115	164	213	262	311

Table 2.13-19(a) & (b) List of the SDSs contained in the Surface Data Vgroup.

Table 2.13-19(a). Surface Data in SRBAVG1

SDS Name	Data Type	Units	Range	No. of Elements Monthly Hourly	No. of Elements Monthly
LW Surface Emissivity	32-Bit Float	N/A	0.0 .. 1.0	24	1
WN Surface Emissivity	32-Bit Float	N/A	0.0 .. 1.0	24	1

Table 2.13-19(b). SDS Index of Surface Data in SRBAVG1

SDS Name	Regional Monthly Hourly	Regional Monthly	Zonal Monthly Hourly	Zonal Monthly	Global Monthly Hourly	Global Monthly
LW Surface Emissivity	57	116	165	214	263	312
WN Surface Emissivity	58	117	166	215	264	313

Total Bits/Region Record:	40,896
Total Bits/Zonal-Global Record:	65,792
Total Bytes/Region Record:	5,112
Total Bytes/Zonal-Global Record:	8,224
Total Records/File:	64,981
Total Bits/File:	6,932,692,628
Total Bytes/File:	866,586,616

Table 2.13-20 List of the Vgroups contained in the CERES and GEO Layer Cloud Properties (SRBAVG2) or CERES Layer Cloud Properties (SRBAVG3) Vgroups.

Table 2.13-20. CERES and GEO Layer Cloud Properties (SRBAVG2) and CERES Layer Cloud Properties (SRBAVG3)

Vgroup Number	Vgroup Name	Monthly Hourly Averages / Monthly (Hour) Averages
1	High	See Table 2.13-21(a) & (b)
2	Upper Middle	See Table 2.13-21(a) & (b)
3	Lower Middle	See Table 2.13-21(a) & (b)
4	Low	See Table 2.13-21(a) & (b)

Table 2.13-21(a) & (b) List of the SDSs contained in the High, Upper Middle, Lower Middle, Low Vgroups.

Table 2.13-21(a). High, Uppermid, Lowermid, Low (mean, stdev, num obs) in SRBAVG2 and SRBAVG3

SDS Name	Data Type	Units	Range	No. of Elements Monthly Hourly	No. of Elements Monthly
Cloud Area Fraction	32-Bit Float	N/A	0.0 .. 100.0	72	3
Cloud Effective Pressure	32-Bit Float	hPa	0.0 .. 1100.0	72	3
Cloud Effective Temperature	32-Bit Float	K	180.0 .. 350.0	72	3
Cloud Effective Height	32-Bit Float	km	0.0 .. 20.0	72	3
Cloud Top Pressure	32-Bit Float	hPa	0.0 .. 1100.0	72	3
Cloud Base Pressure	32-Bit Float	hPa	0.0 .. 1100.0	72	3
Cloud Particle Phase	32-Bit Float	fraction	1.0 .. 2.0	72	3
Liquid Water Path	32-Bit Float	gm ⁻²	0.0 .. 10000.0	72	3
Ice Water Path	32-Bit Float	gm ⁻²	0.0 .. 10000.0	72	3
Water Particle Radius	32-Bit Float	micron	0.0 .. 40.0	72	3
Ice Particle Effective Diam	32-Bit Float	micron	0.0 .. 300.0	72	3
Infrared Emissivity	32-Bit Float	N/A	0.0 .. 2.0	72	3
Cloud Visible Optical Depth - lin	32-Bit Float	N/A	0.0 .. 100.0	72	3

Table 2.13-21(a). High, Uppermid, Lowermid, Low (mean, stdev, num obs) in SRBAVG2 and SRBAVG3

SDS Name	Data Type	Units	Range	No. of Elements Monthly Hourly	No. of Elements Monthly
Cloud Visible Optical Depth - log	32-Bit Float	N/A	0.0 .. 100.0	72	3
Cloud Vertical Aspect Ratio	32-Bit Float	N/A	0.0 .. 20.0	72	3

Table 2.13-21(b). SDS Index of High, Uppermid, Lowermid, Low (mean, stdev, num obs) in SRBAVG2 and SRBAVG3

SDS Name	Regional Monthly Hourly	Regional Monthly	Zonal Monthly Hourly	Zonal Monthly	Global Monthly Hourly	Global Monthly
Cloud Area Fraction	0 15 30 45	60 75 90 105	120 135 150 165	180 195 210 225	240 255 270 285	300 315 330 345
Cloud Effective Pressure	1 16 31 46	61 76 91 106	121 136 151 166	181 196 211 226	241 256 271 286	301 316 331 346
Cloud Effective Temperature	2 17 32 47	62 77 92 107	122 137 152 167	182 197 212 227	242 257 272 287	302 317 332 347
Cloud Effective Height	3 18 33 48	63 78 93 108	123 138 153 168	183 198 213 228	243 258 273 288	303 318 333 348
Cloud Top Pressure	4 19 34 49	64 79 94 109	124 139 154 169	184 199 214 229	244 259 274 289	304 319 334 349
Cloud Base Pressure	5 20 35 50	65 80 95 110	125 140 155 170	185 200 215 230	245 260 275 290	305 320 335 350
Cloud Particle Phase	6 21 36 51	66 81 96 111	126 141 156 171	186 201 216 231	246 261 276 291	306 321 336 351
Liquid Water Path	7 22 37 52	67 82 97 112	127 142 157 172	187 202 217 232	247 262 277 292	307 322 337 352
Ice Water Path	8 23 38 53	68 83 98 113	128 143 158 173	188 203 218 233	248 263 278 293	308 323 338 353
Water Particle Radius	9 24 39 54	69 84 99 114	129 144 159 174	189 204 219 234	249 264 279 294	309 324 339 354
Ice Particle Effective Diam	10 25 40 55	70 85 100 115	130 145 160 175	190 205 220 235	250 265 280 295	310 325 340 355
Infrared Emissivity	11 26 41 56	71 86 101 116	131 146 161 176	191 206 221 236	251 266 281 296	311 326 341 356
Cloud Visible Optical Depth - lin	12 27 42 57	72 87 102 117	132 147 162 177	192 207 222 237	252 267 282 297	312 327 342 357
Cloud Visible Optical Depth - log	13 28 43 58	73 88 103 118	133 148 163 178	193 208 223 238	253 268 283 298	313 328 343 358
Cloud Vertical Aspect Ratio	14 29 44 59	74 89 104 119	134 149 164 179	194 209 224 239	254 269 284 299	314 329 344 359

Color Red - High Cloud
 Color Green - Uppermid Cloud
 Color Blue - Lowermid Cloud
 Color Black - Low Cloud

Total Bits/Record: 219,424
Total Bytes/Record: 27,256
Total Record/File: 64,981
Total Bits/File: 14,258,390,944
Total Bytes/File: 1,771,122,136

SRBAVG Revision Record

The product Revision Record contains information pertaining to approved document changes. The table lists the date the Software Configuration Change Request (SCCR) was approved, the Release and Version Number, the SCCR number, a short description of the revision, and the revised sections. The document authors are listed on the cover.

SRBAVG Revision Record

SCCR Approval Date	Release/Version Number	SCCR Number	Description of Revision	Section(s) Affected
6/17/02	R3V2	368	<ul style="list-style-type: none"> • Changed column clouds to layer clouds and deleted the angular model scene types. • Added SRBAVG3. • Added SRBAVG3 and the Vgroup names. • Added region number, colatitude and longitude. • Changed ERBE-like to non-GEO. • Changed the net flux range. • Changed the net flux range and the ERBE-like to non-GEO. • Added another Vgroup name for cloud. • Changed the number of elements monthly hourly of the total cloud area fraction from 24 to 72. • Updated format to comply with standards. 	<p style="text-align: center;">2.12</p> <p style="text-align: center;">2.12-2 & 3</p> <p style="text-align: center;">2.12-5</p> <p style="text-align: center;">2.12-6</p> <p style="text-align: center;">2.12-7</p> <p style="text-align: center;">2.12-8, 9,12,13</p> <p style="text-align: center;">2.12-10 & 11</p> <p style="text-align: center;">2.12-20</p> <p style="text-align: center;">2.12-21</p> <p style="text-align: center;">All</p>
3/25/04	R3V3	516	<ul style="list-style-type: none"> • Updated information to add "Edition2A" to Terra under Product Version. • Updated format to comply with standards. 	<p style="text-align: center;">2.12</p> <p style="text-align: center;">All</p>
11/08/04	R3V4	566	<ul style="list-style-type: none"> • Updated information to add "Edition2C" to Terra under Product Version. • Updated to add the SDS Index tables. • Updated format to comply with standards. 	<p style="text-align: center;">2.12</p> <p style="text-align: center;">2.12</p> <p style="text-align: center;">All</p>
02/26/08	R4V1	671	<ul style="list-style-type: none"> • Updated Product Version. • The EOSDIS Product Code line was removed from the document. (6/17/2008) • Section numbering was changed due to insertion of the ISCCP D2-like DPC. (09/24/2008) 	<p style="text-align: center;">Product Version Section</p> <p style="text-align: center;">Sec. 2.12</p> <p style="text-align: center;">All</p>