SNPP VIIRS SRIP Provisional Maturity (DR 7344) 474-CCR-13-1243

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# SNPP VIIRS SR Provisional Maturity 474-CCR-13-1243

- This CCR declared that SNPP VIIRS Surface Reflectance Intermediate Product (VIIRS-Surf-Refl-IP) be upgraded to provisional maturity level with implementation of 474-CCR-13-1078 containing DRs 4488, 7141 and 7142 at IDPS.

- Algorithm build version Mx8.3 implemented 474-CCR-13-1078 and was put in operation at IDPS on March 18, 2014.

- Analysis of SR-IP from IDPS operation confirms successful implementation of the DRs with no negative impact on any downstream EDRs.

- Following slides present the DRs and verification of these DRs in the operational Mx83 data.

DRs in CCR-1078

DR#	Description	Status
4488	Retrieve reflectance under all atmospheric conditions for all non-ocean (not sea-water) pixels except for night pixels and where input L1B is invalid	Included in the operational build version Mx83
7141	Include an additional QF Byte (QF7) in the SR-IP. The additional QF byte Bit 0: Snow (0 - No, 1 – Yes). Copied from Cloud Mask IP Bit 1: Adjacent Cloud (0 – No, 1 –yes). Copied from Cloud Mask IP Bits 2-3: Aerosol quantity (00 – Climatology, 01 – low, 10 – Average, 11 – High). Code segment from MODIS PGE11 updated for VIIRS. Bit 4: Thin Cirrus (0 – No, 1-Yes) copied from Cloud Mask IP	Included in the operational build version Mx83
7142	Replace NAAPS/Climatology with MODIS Climatology (0.06) within the surface reflectance algorithm. This doesn't change the AOTIP product.	Included in the operational build version Mx83

Surface Reflectance IP from Day 2014094 (4/4/2014)

Retrieved under all atmospheric conditions for all non-ocean (not sea-water) pixels except for night pixels and where input L1B is invalid


Moderate Res

Image Res
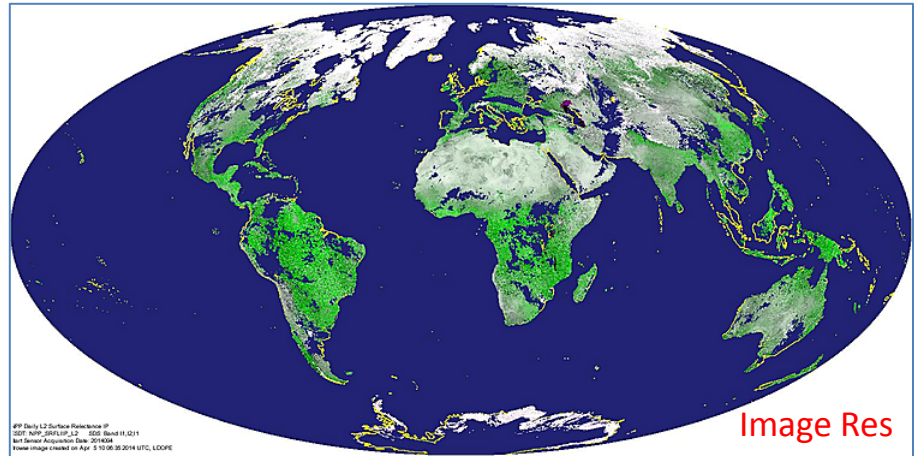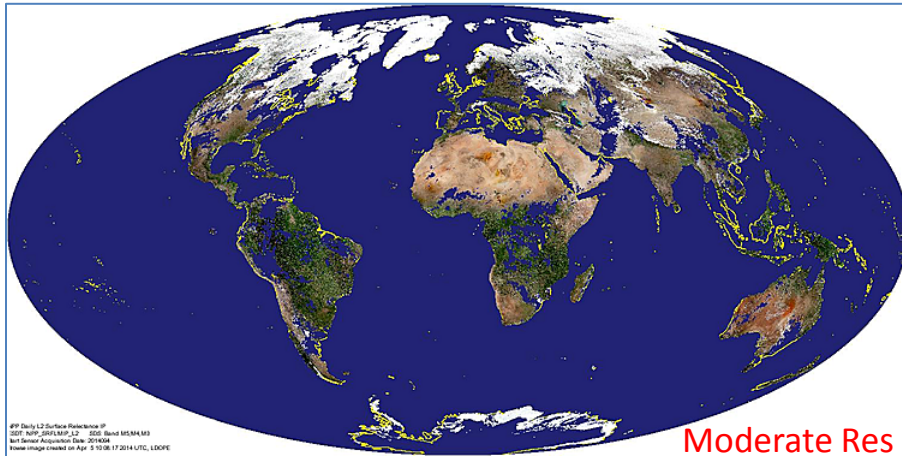
Retrieval using Mx73 at Land PEATE – SRIP not retrieved under confidently cloud and heavy aerosol, using NAAPS/Climatology when AOTIP is not retrieved.

Moderate Res

Image Res
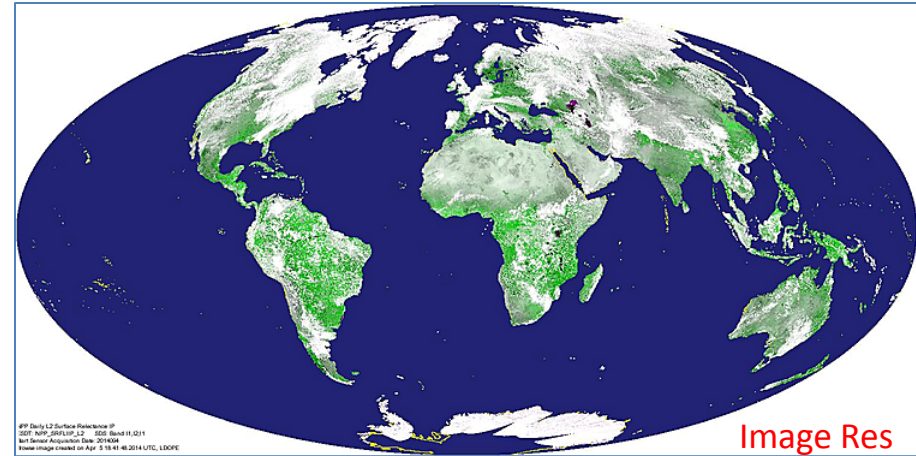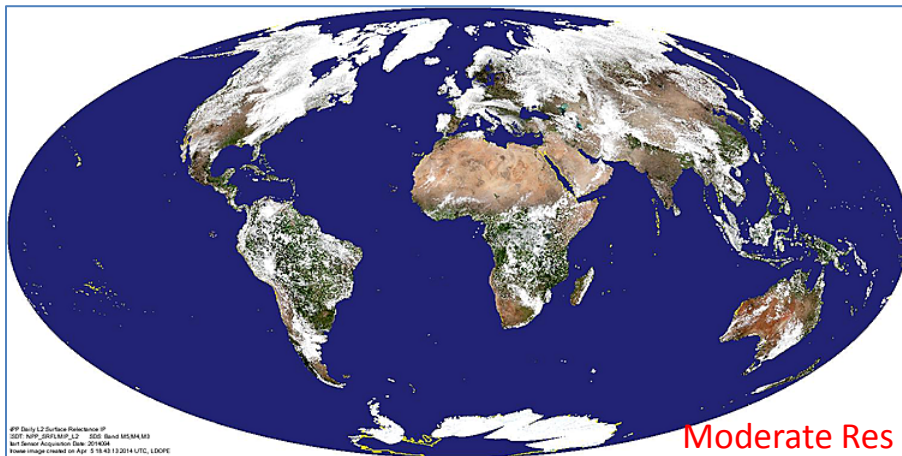
Retrieval using Mx83 at IDPS – SRIP retrieved under all atmospheric condition replacing NAAPS/Climatology with MODIS Climatology..

SR IP: Retrieved under Confident Cloud
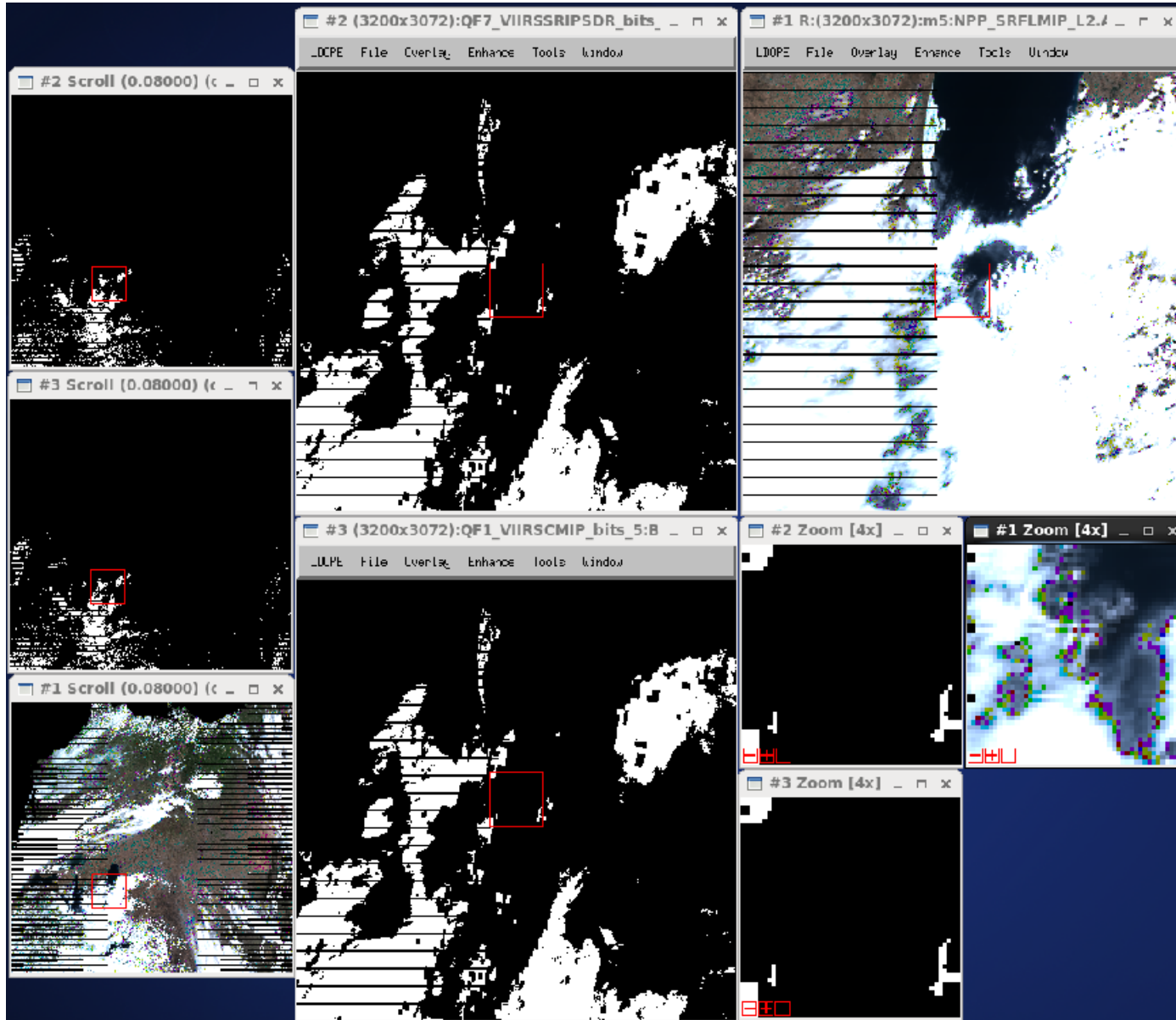## Day 2014101, Granule 13:50
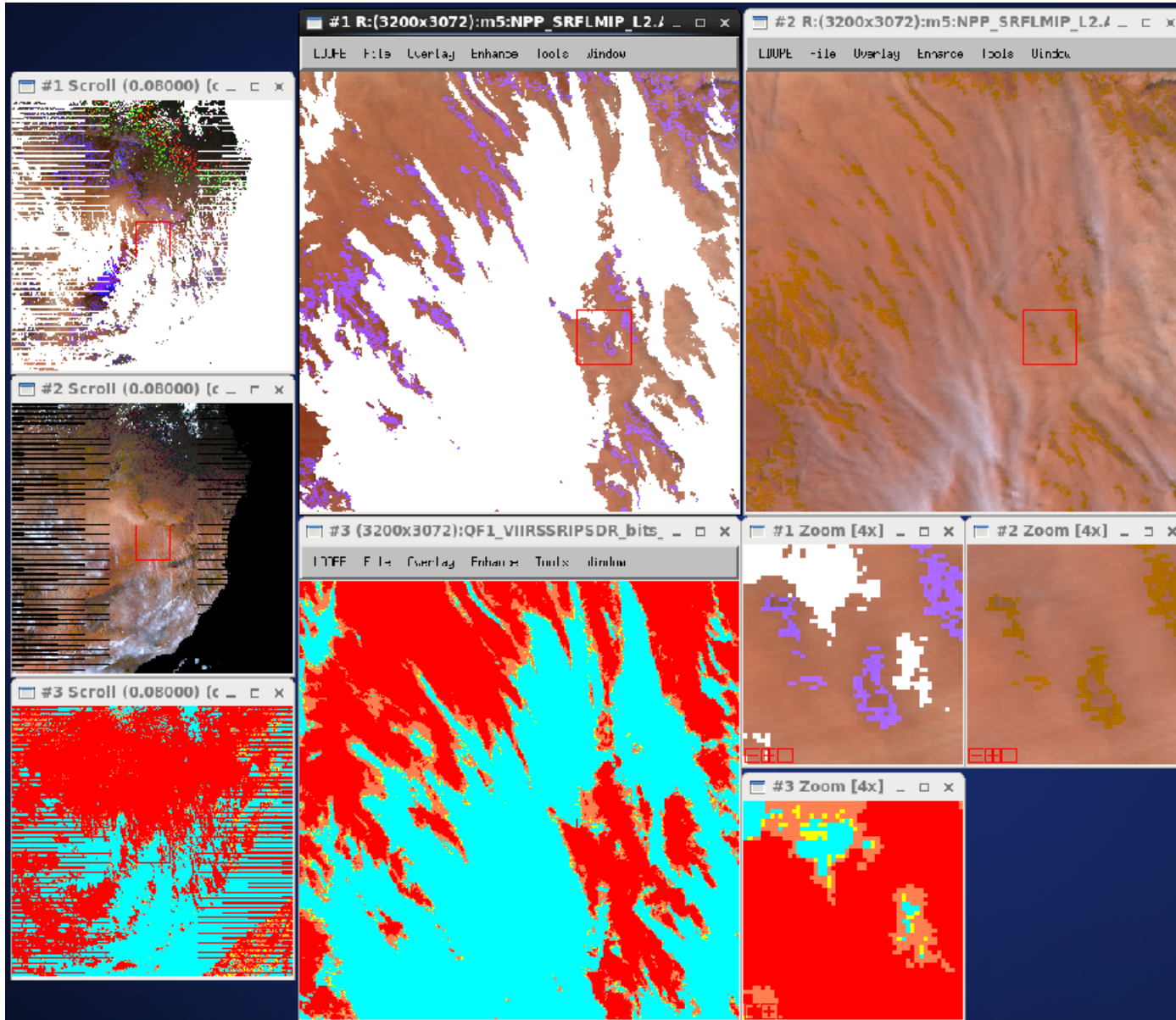
Windows
1: SR-IP, Mx73
2: SR-IP Mx83
3: VCM Mx83

VCM – Cloud detection
- Confident clear
- Probable clear
- Probable cloud
- Confident cloud

QF7 in SR IP: Bit 0 (Snow/Ice – Copied from VCM)
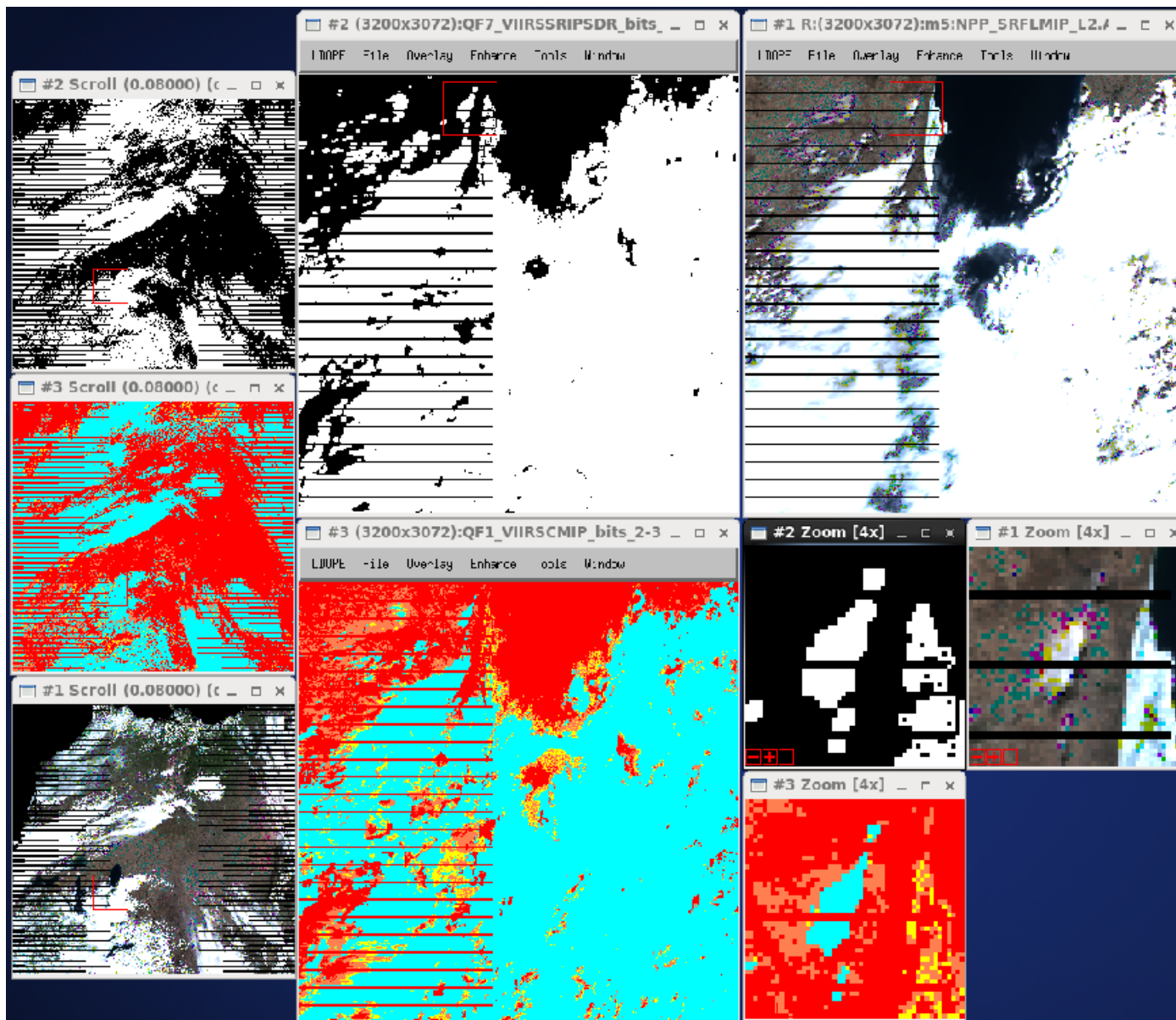## Day 2014101, Granule 19:00

Windows
1: SR-IP, Mx83
2: SR-IP, QF7-Bit0, Mx83
3: VCM, QF1-Bit5, Mx83

QF7 in SR IP: Bit 1 (Adjacent Cloud – Copied from VCM)
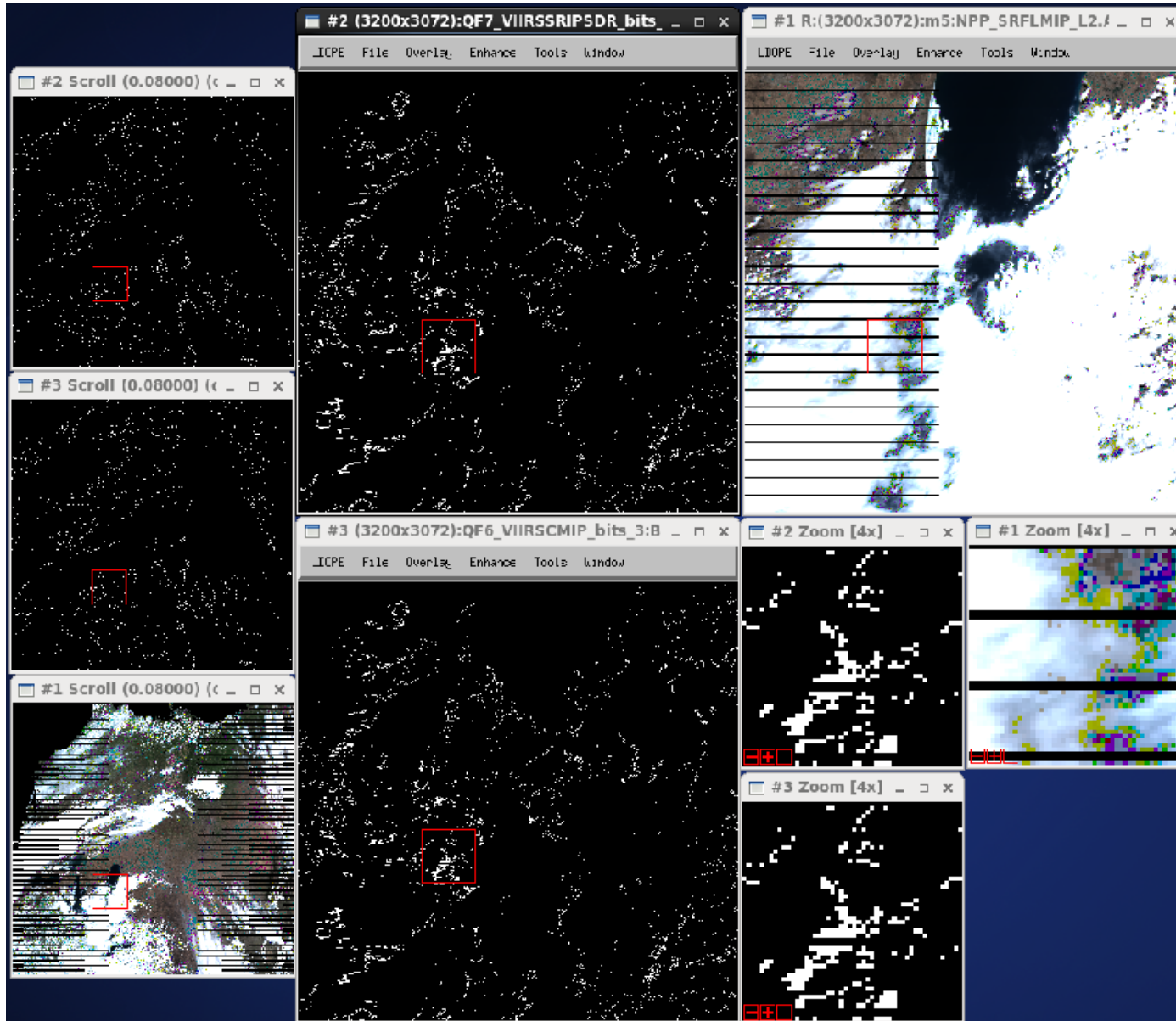## Day 2014101, Granule 19:00

Windows
1: SR-IP, Mx83
2: SR-IP, QF7-Bit1, Mx83
3: VCM, QF1-Bit2-3, Mx83

VCM – Cloud detection

- Confident clear
- Probable clear
- Probable cloud
- Confident cloud

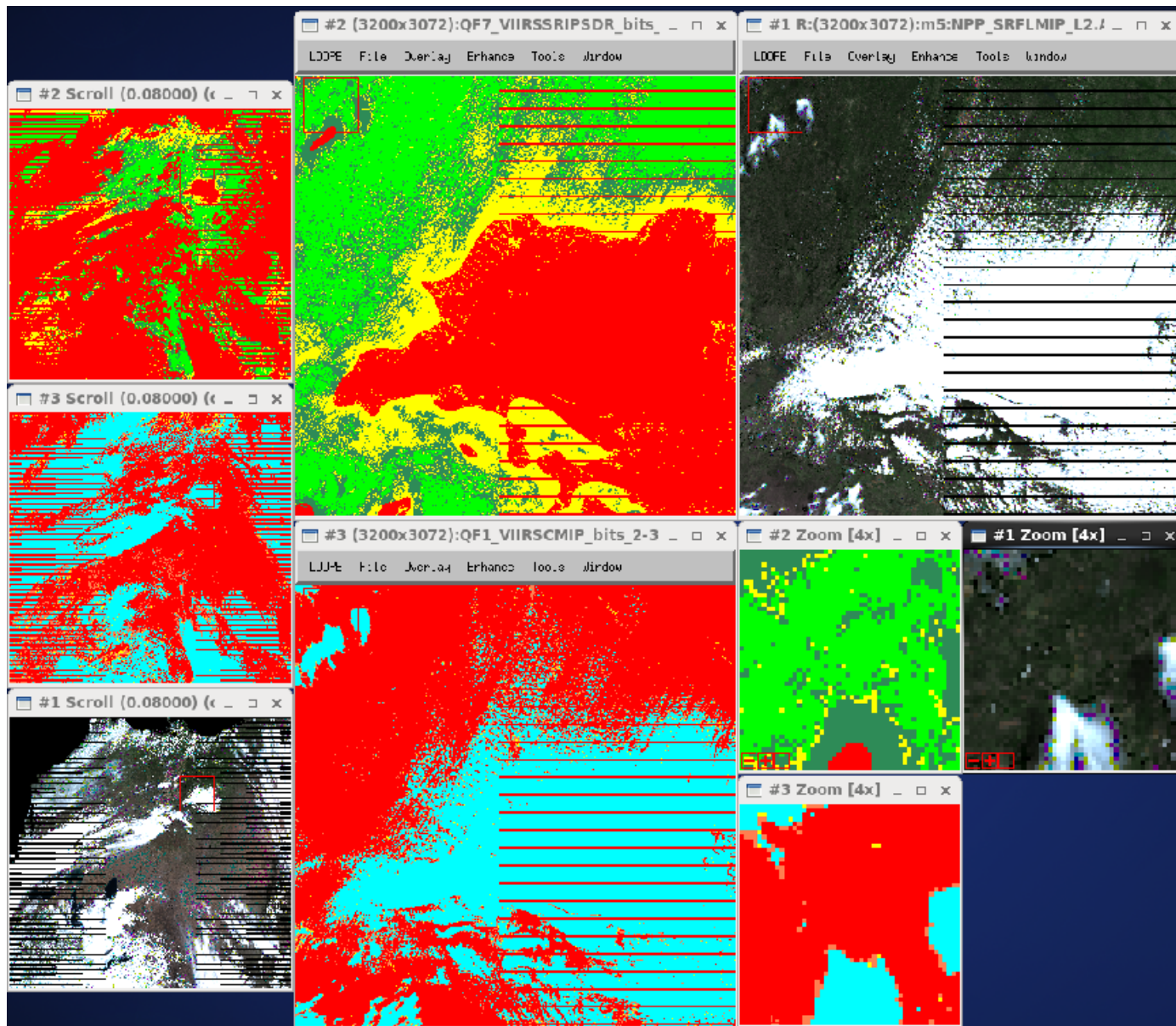# QF7 in SR IP: Bit 4 (Thin Cirrus – Copied from VCM)
Day 2014101, Granule 19:00

Windows
1: SR-IP, Mx83
2: SR-IP, QF7-Bit4, Mx83
3: VCM, QF6-Bit3, Mx83

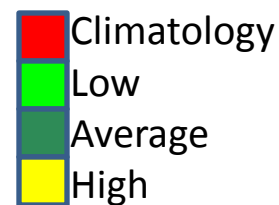# QF7 in SR IP: Bit 2-3 (Aerosol Quantity - MODIS Approach)
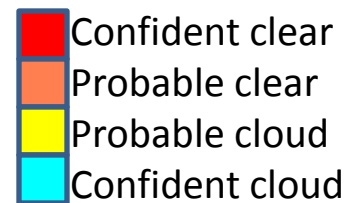## Day 2014101, Granule 19:00

Windows
1: SR-IP, Mx83
2: SR-IP, QF7, Bit2-3, Mx83
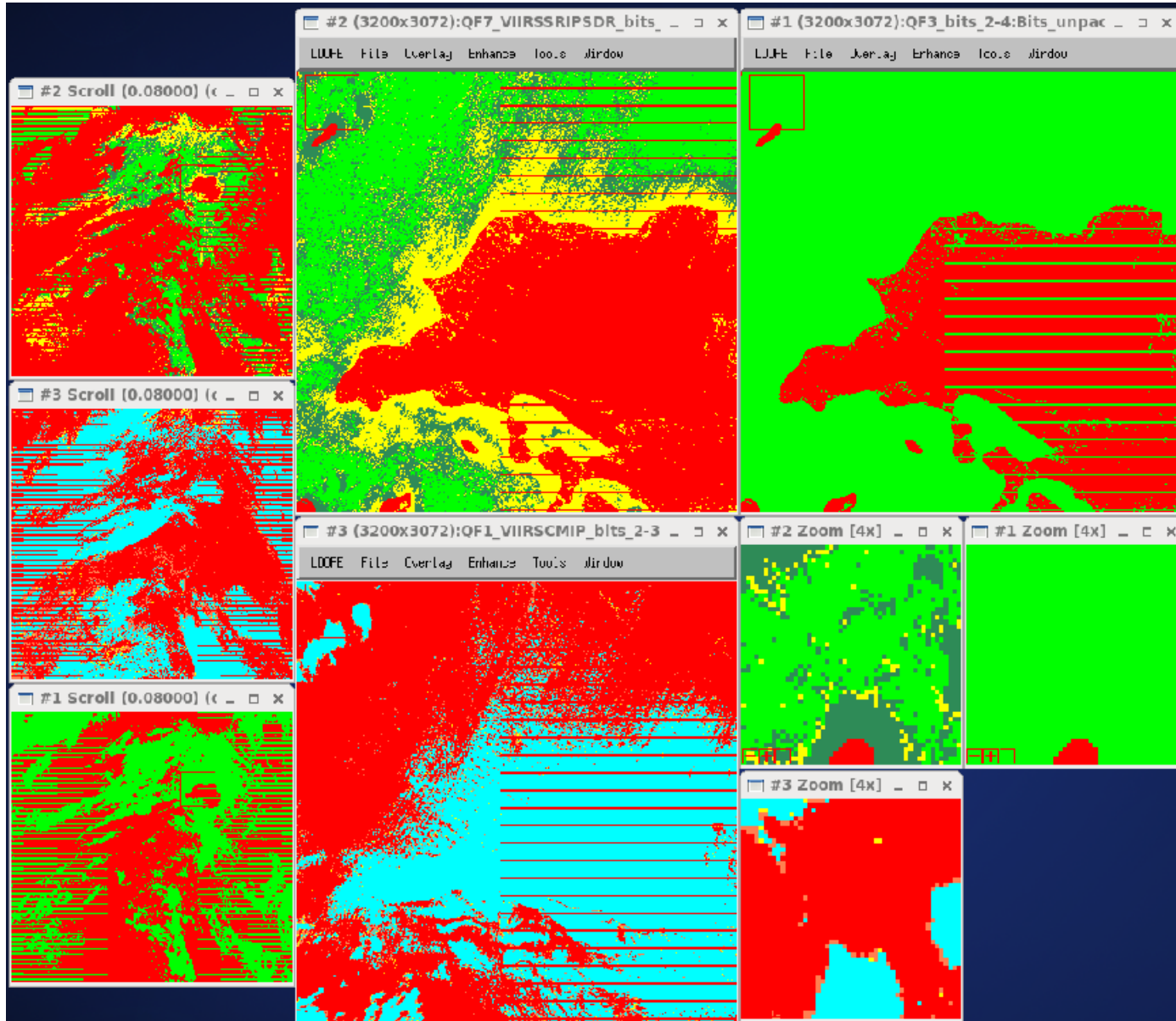3: VCM, QF1-Bit2-3, Mx83

SR-IP – Aerosol Quantity
- Climatology
- Low
- Average
- High

VCM – Cloud detection
- Confident clear
- Probable clear
- Probable cloud
- Confident cloud

QF7 in SR IP: Bit 2-3 (Aerosol Quantity - MODIS Approach)
Day 2014101, Granule 19:00

Windows
1: AOT-IP, QF3, Bit2-4, Mx83
2: SR-IP, QF7, Bit2-3, Mx83
3: VCM, QF1-Bit2-3, Mx83

AOTIP – Aerosol Processing
NAAPS/Climatology
Retrieved/Interpolated

SR-IP – Aerosol Quantity
Climatology
Low
Average
High

VCM – Cloud detection
Confident clear
Probable clear
Probable cloud
Confident cloud

SNPP VIIRS SR Provisional Maturity Conclusion

- Analysis of SR-IP from IDPS with Mx83 in operation confirms successful implementation of the DRs required for provisional maturity of the product

- Review of downstream products since the transition of Mx83 into operation did not reveal any adverse impact.

- Science team recommends reconfirmation of approval of provisional maturity for the product.