MODIS Ocean
Data Processing Update

Ron Vogel, SAIC/GSC

January 23, 2001

Recent Improvements

- **EDOS (Level 0):** new system installed, improved receipt of data
- **GDAAC (Level 1):** new hardware (Aqua) installed, processing Terra data at 2x average capacity
- **MODAPS (Level 2 & 3):** all ocean code running except monthly & yearly ocean color & SST, yearly primary production

Processing Status

- **EDOS** processes at spacecraft edge
- **GDAAC** 15 days behind, but now able to catch up due to new Aqua hardware
- **MODAPS** 48 days behind realtime, not able to catch up from system downtimes

Data Ordering Status

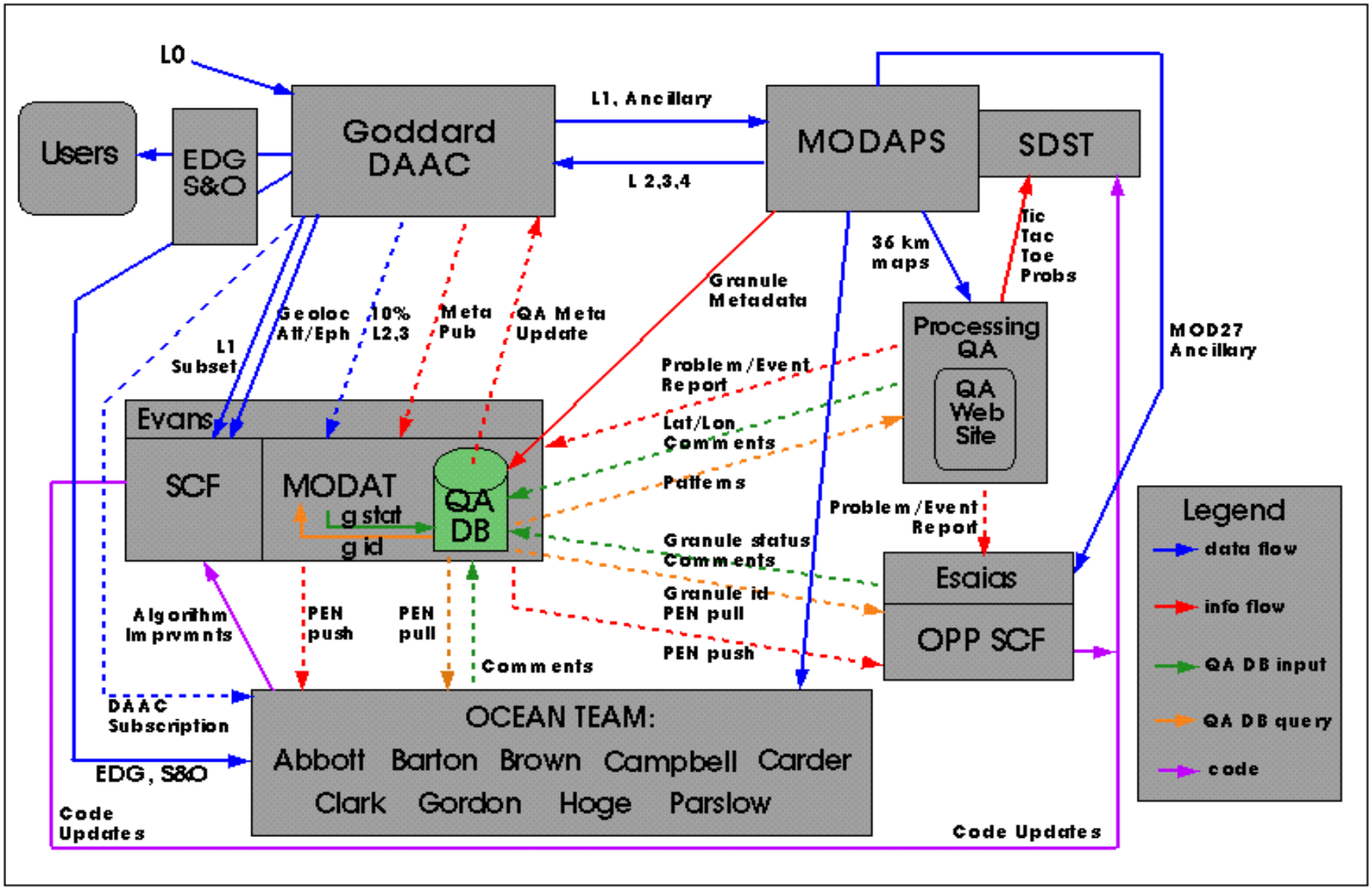
http://modis-ocean.gsfc.nasa.gov/qa/orderoptions.html

- **Ordering from MODAPS**
  - **MEBDOS** Search & Order Interface
    - Order individual files through search form, files staged for ftp
    - Contact Vogel if ftp notification takes too long, or for other rapid access
  - **Subscription**
    - Continual push of data as it's produced, pull available soon
- **Ordering from GDAAC**
  - **GDAAC Search & Order** Interface
    - Hierarchical browse, files staged for ftp
    - Sign up as Registered User
  - **EOS Data Gateway (EDG)**
    - Search form, files staged for ftp
  - **Subscription**
    - No geographic selection capability (until July 2001)

Data Ordering Status (cont')

- **MODAPS**
  - Level 2 & 3 data available for approximately 3 weeks from processing date, then deleted
- **GDAAC**
  - Level 1A & 1B available to public from data day Mar 17 and onward
  - Level 2 available to public from data day Sept 15 and onward
  - Level 3 available to public from data day Sept 21 and onward
  - Level 4 not yet available to public
  - Use EDG public site or Search & Order to obtain public data
  - Use EDG hidden site to obtain data prior to public availability date

MODIS Ocean Data Quality Assurance



Processing QA Status

- QA Web Tool

  Interim Daily, Declouded Daily, Declouded Weekly

  36-km maps (be able to download HDF files?)

  http://modis-ocean.gsfc.nasa.gov/qa/interim

  http://modis-ocean.gsfc.nasa.gov/qa/declouded

- Known Problems

  QA Flag value for each ocean parameter (provisional solution until metadata QA updates functional)

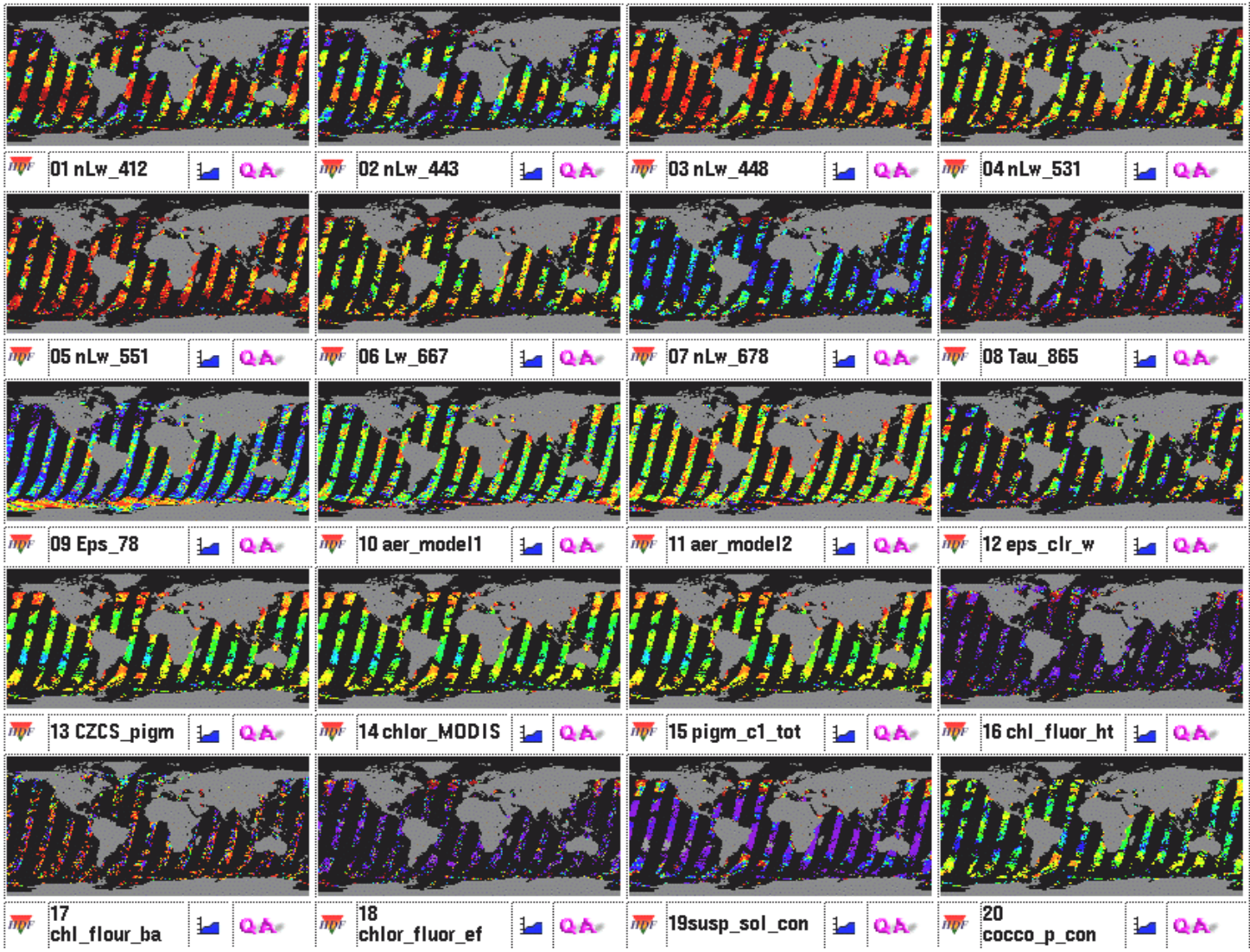
  http://modis-ocean.gsfc.nasa.gov/qa/knownprobs.html

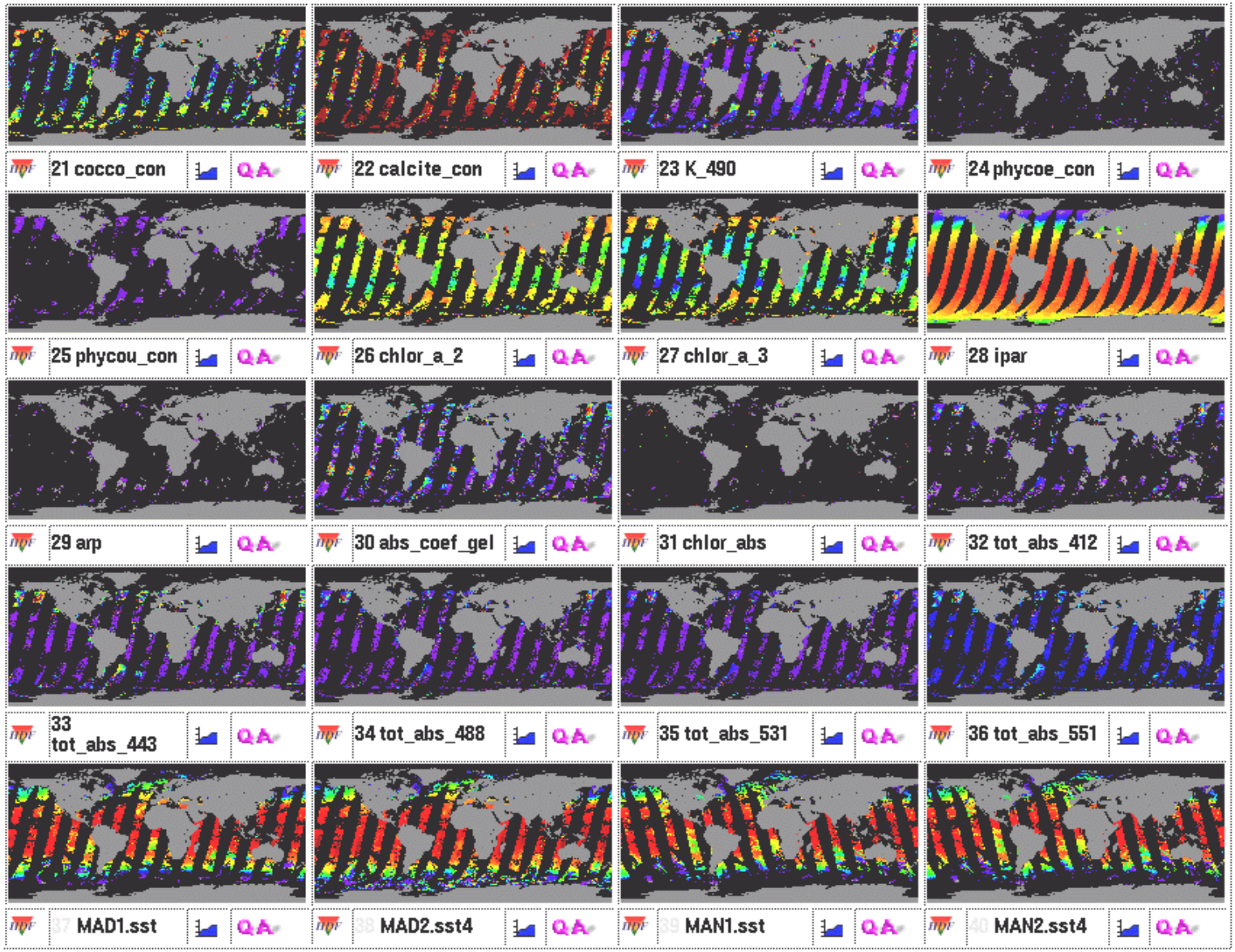
MODIS Ocean

Home Data Products Quality Assurance Validation Data Processing References Links

Interim daily 36KM maps

Day 330 (November 25, 2000)





Designed and Developed by: Marius Necsoiu, Futuretech (marius@puffin.gsfc.nasa.gov) and Kevin Turpie, GSC (turpie@osprey.gsfc.nasa.gov)
Authorized by: Wayne E. Esaias, Code 971, NASA Goddard Space Flight Center

MODIS Ocean

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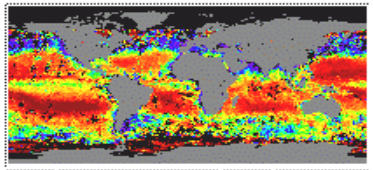
Weekly declouded 36Km maps

Week starting Day 313 (November 8, 2000)



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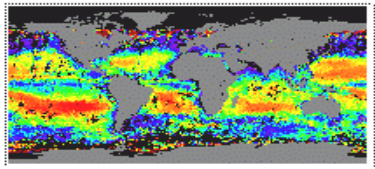

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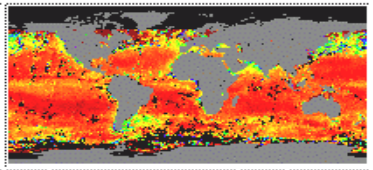

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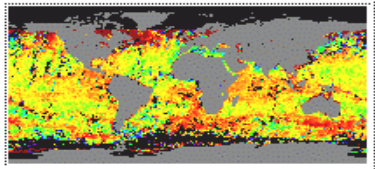

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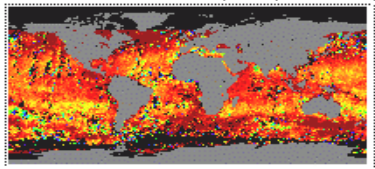

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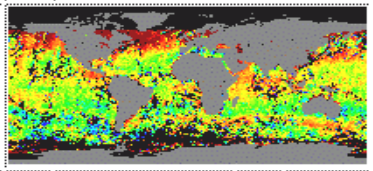

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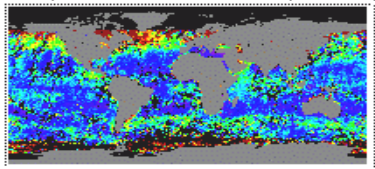

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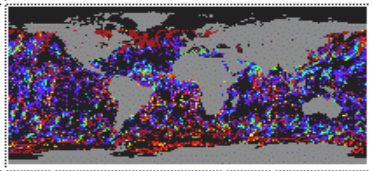

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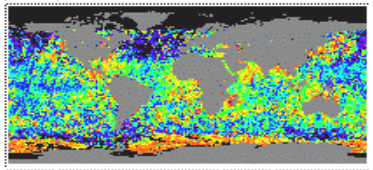

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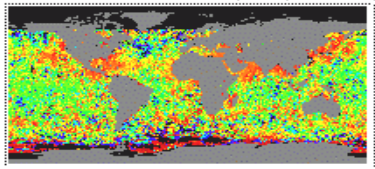

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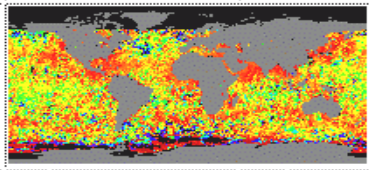

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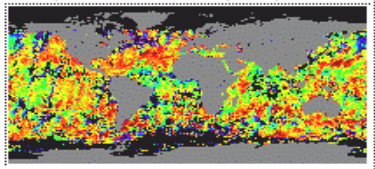
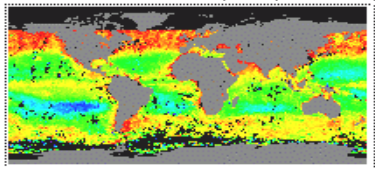
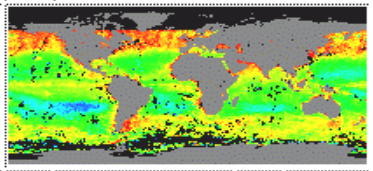


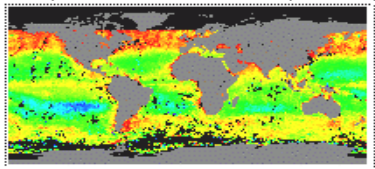
12 eps_clr_w QA



13 CZCS_pigm QA



14 chlor_MODIS QA



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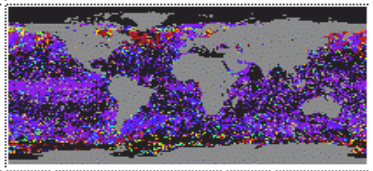
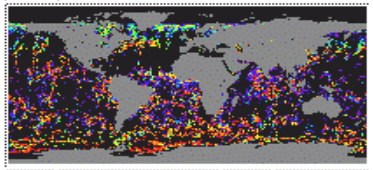


16 chl_fluor_ht QA



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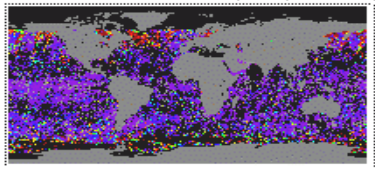

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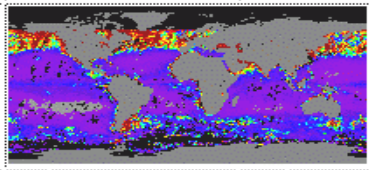
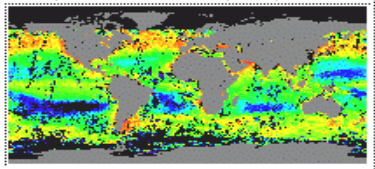
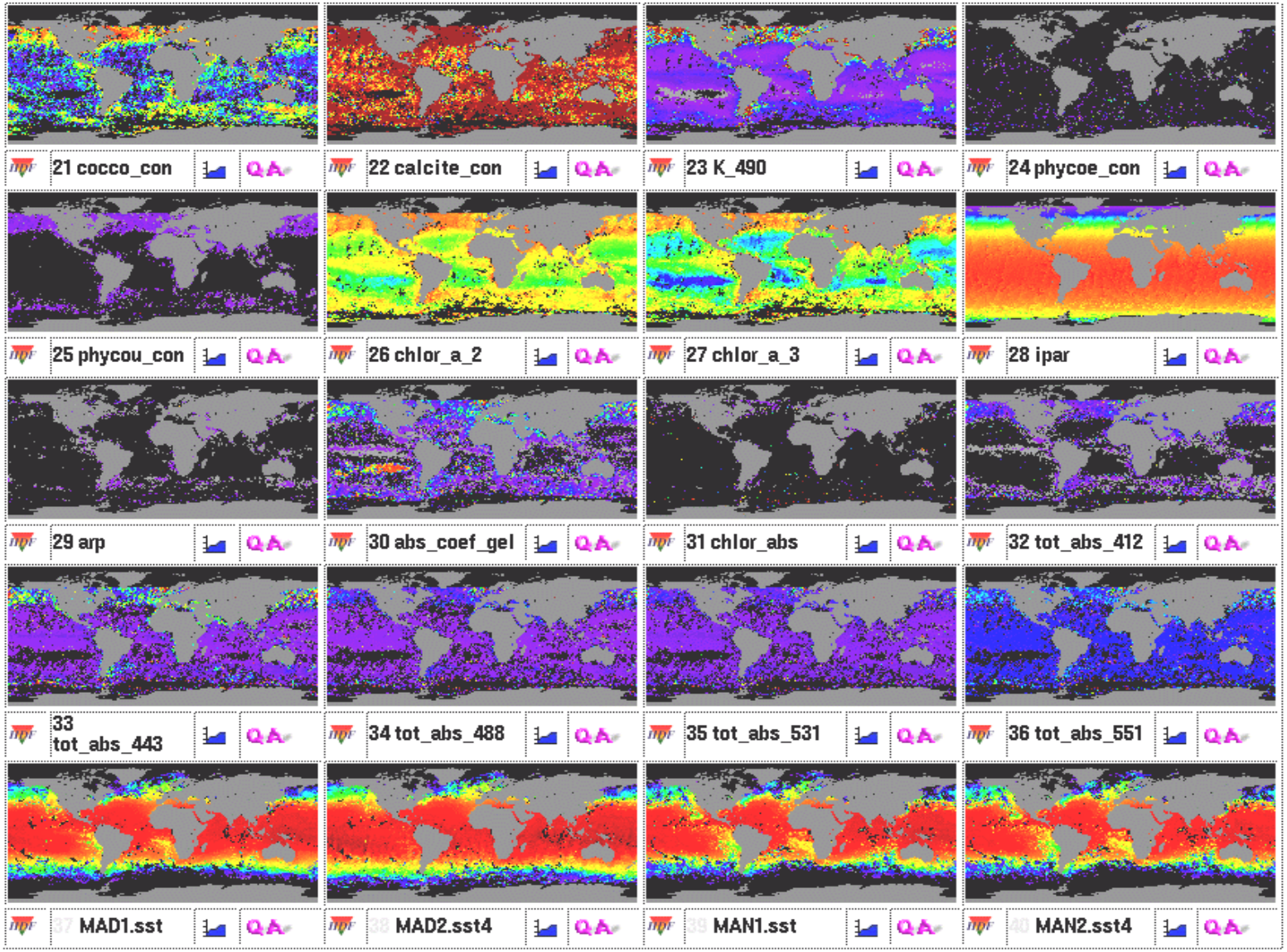


19susp_sol_con QA



20 cocco_p_con QA



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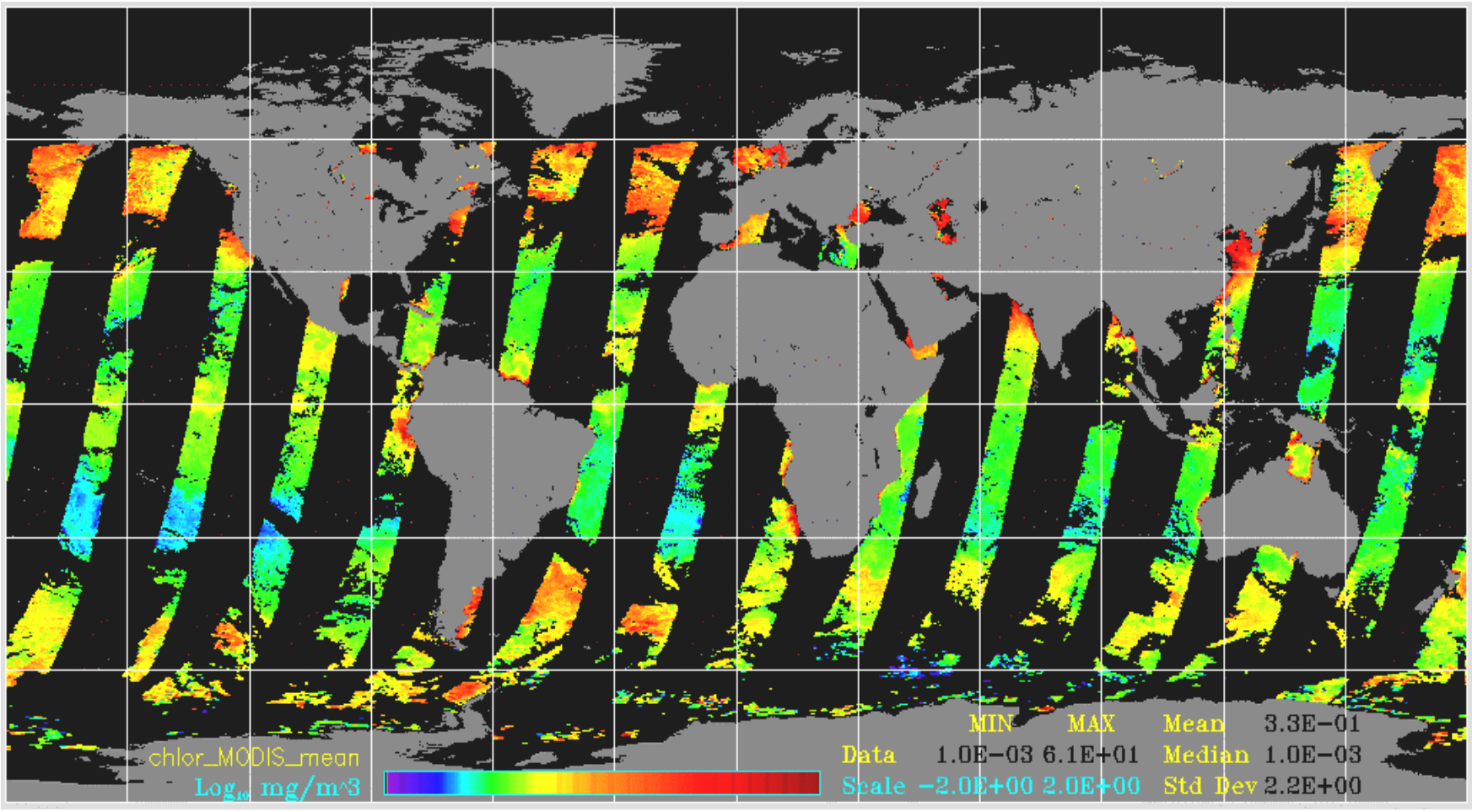
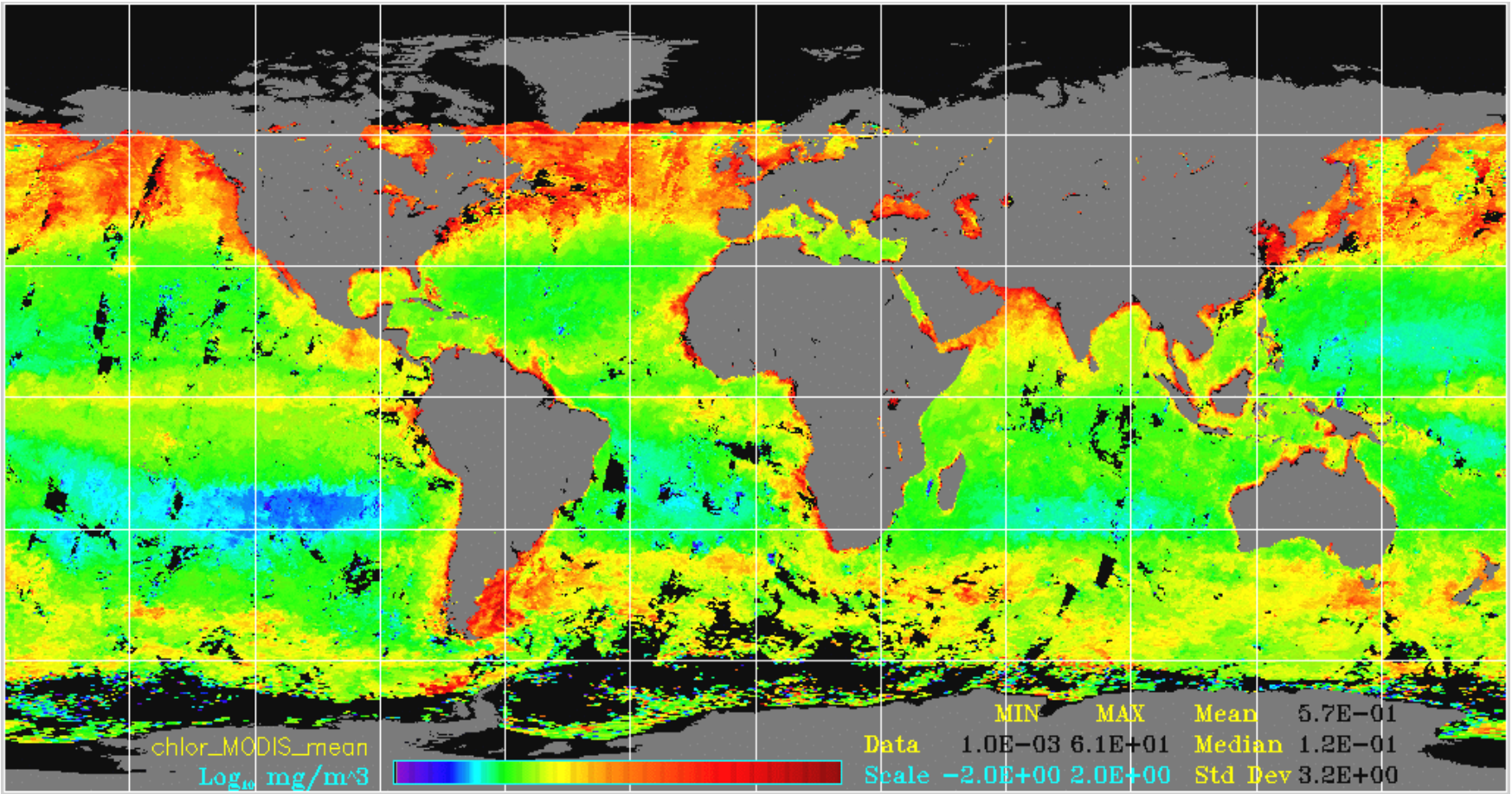
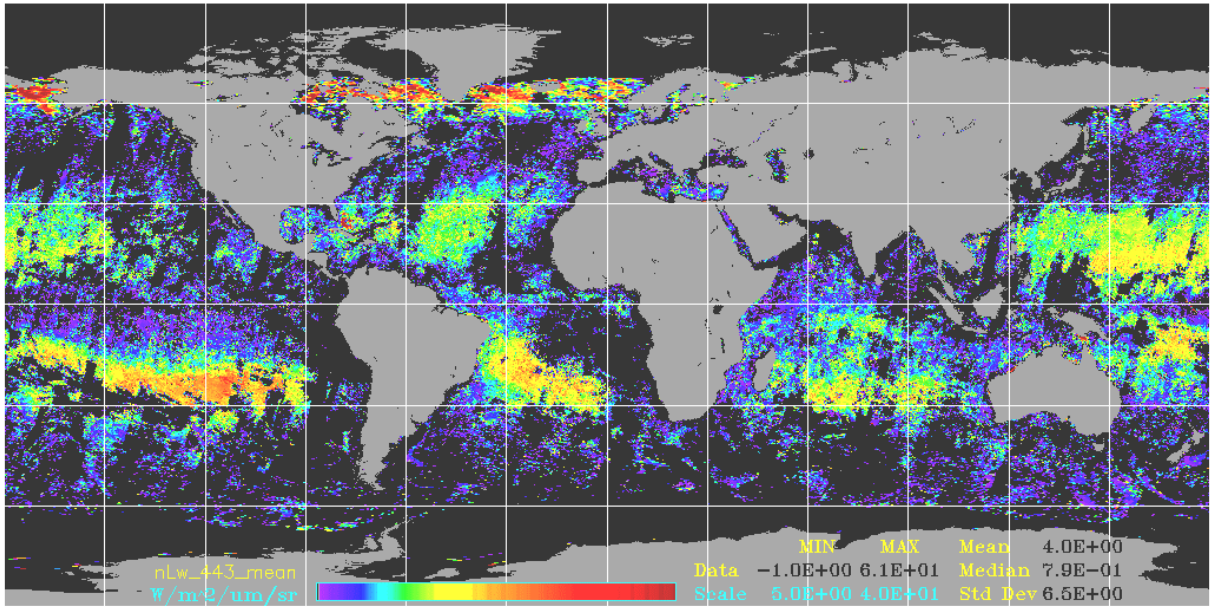
Authorized by: Wayne E. Esaias, Code 971, NASA Goddard Space Flight Center

chlor_MODIS interim daily, 2000.330



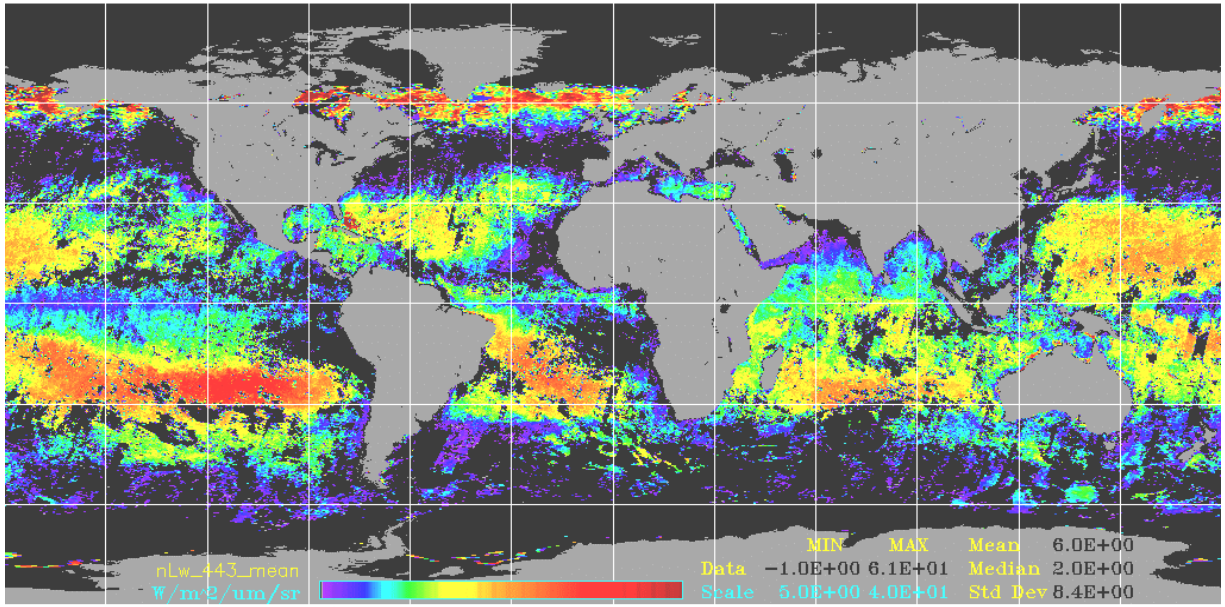
chlor_MODIS weekly, 2000.313-320





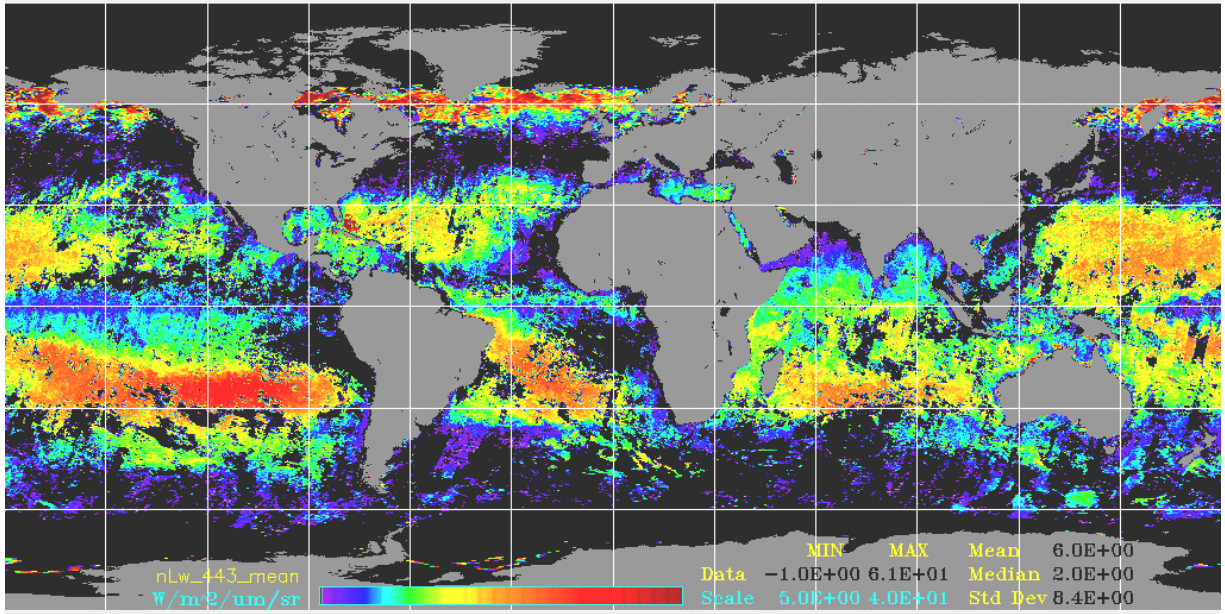
nLw_443 weekly
2000.297-304

A-side with corrections



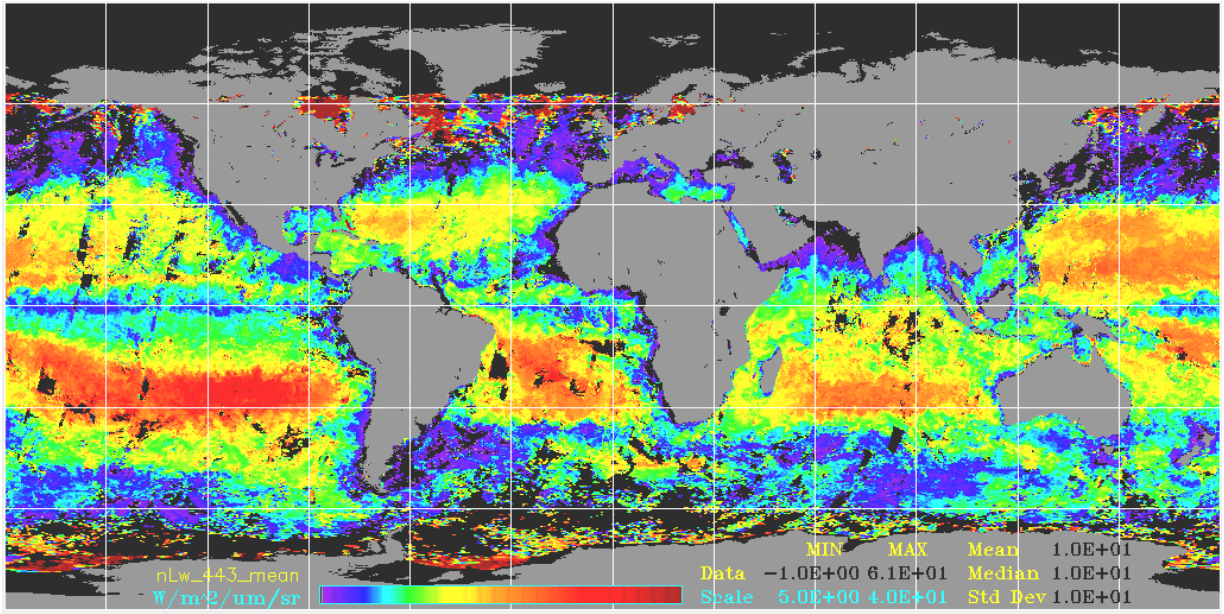
nLw_443 weekly
2000.305-312

B-side without corrections



nLw_443 weekly
2000.305-312

36-km improper binning



nLw_443 weekly
2000.313-320

36-km corrected binning

MODIS Ocean
Processing Code Updates

Installation Date	Module	Change Description	PGE	Products Affected	Processing Date	Data Date
Jan 17, 2001	MSPC v.2.2.5	36-km and 1-deg maps binned with best quality values	PGE 20 v.2.3.12	Interim daily 36-km and 1-deg maps	Jan 18, 2001 (018)	Nov 25, 2000 (330)
			PGE 53 v.2.3.14	Declouded daily 36-km and 1-deg maps	Jan 19, 2001 (019)	Nov 8, 2000 (313)
			PGE 54 v.2.3.12	Declouded weekly 36-km and 1-deg maps	Jan 19, 2001 (019)	Nov 8, 2000 (313)
Jan 17, 2001	MCLOUD	Turn off declouding (no quality demotion due to comparison with 3-week reference)	PGE 53 v.2.3.14	All declouded Level 3 products	Jan 19, 2001 (019)	Nov 8, 2000 (313)
December 31, 2000	MODCOL	Update coeff files for B-side electronics (destriping corrections)	PGE 09 v.2.4.8	all ocean color Level 2 & 3 products, Level 4 products	Jan 2, 2001 (002)	Nov 12, 2000 (317)
December 31, 2000	MODSST	Update coeff files for B-side electronics (destriping corrections)	PGE 10 v.2.4.6	all SST Level 2 & 3 products, Level 4 products	Jan 2, 2001 (002)	Nov 12, 2000 (317)

MODIS Ocean Quality Assurance

Known Problems and Artifacts

Last updated: 1/21/2001

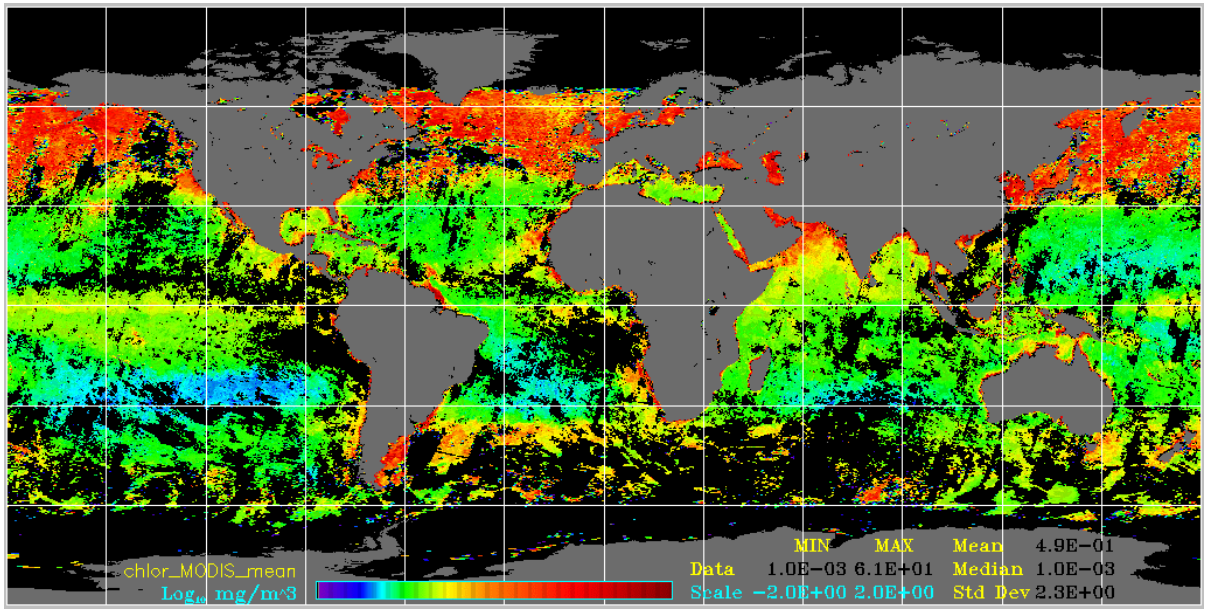
Quality and Status of Specific Ocean Parameters

Table 1: Parameter QA Flag and Flag Explanations, 1/8/2001

Parameter Name	Data Date	QA Flag	Quality Flag Explanation
CZCS_pigment	September 15, 2000 (265)	Suspect	Un-calibrated, geophysically reasonable value range
chlor_MODIS	September 15, 2000 (265)	Suspect	Un-calibrated, geophysically reasonable value range
pigment_c1_total	September 15, 2000 (265)	Suspect	Un-calibrated, geophysically reasonable value range
chlor_fluor_ht	September 15, 2000 (265)	Inferred Fail	Un-calibrated, values 10x too high from expected
	October 10, 2000 (284)	Suspect	Un-calibrated, geophysically reasonable value range
chlor_fluor_base	September 15, 2000 (265)	Suspect	Un-calibrated, values in expected range
chlor_fluor_effic	September 15, 2000 (265)	Inferred Fail	Invalid due to failed input product chlor_fluor_ht
	October 10, 2000 (284)	Suspect	Un-calibrated, data range under evaluation
susp_solids_conc	September 15, 2000 (265)	Suspect	Algorithm not functioning, files contain all zeros
	October 10, 2000 (284)	Suspect	Un-calibrated, geophysically reasonable value range
cocco_pigmnt_conc	September 15, 2000 (265)	Suspect	Un-calibrated, when bloom has occurred values reasonable
cocco_conc_detach	September 15, 2000 (265)	Suspect	Un-calibrated, when bloom has occurred values reasonable

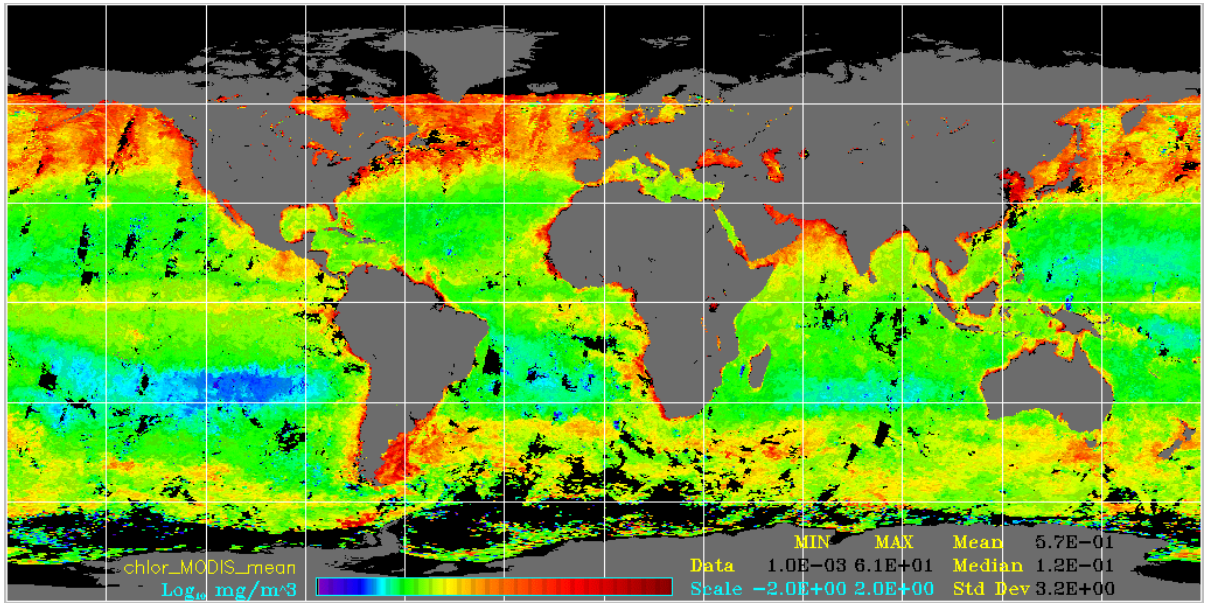
Tracking Data Through the Processing System
Cheat Sheet

- Given time and location of observation, determine granule number (ex. 2000273.1725)
  - Use Orbit Predictors
    - http://mcstweb.gsfc.nasa.gov/OF/index.html
    - http://earthobservatory.nasa.gov/MissionControl/overpass.html
  - Use Miami's Level 1A search page
    - http://miracle.rsmas.miami.edu/modis/data/searchl1.cgi
- Determine if Level 2 or 3 data has been processed for that data day
  - Use MODAPS Daily Status
    - http://mtvs1.nascom.nasa.gov:8001/CM/Ops-Daily-Status.html
- Determine Granule ID of specific file produced
  - Use MODAPS Tic Tac Toe
    - http://mtvs1.nascom.nasa.gov:8001/report/beta
- Proceed to Search & Order interfaces
  - MEBDOS: http://mtvs1.nascom.nasa.gov:8001
  - GDAAC Search & Order: http://acdisx.gsfc.nasa.gov/data
  - EOS Data Gateway: http://eos.nasa.gov/imswelcome



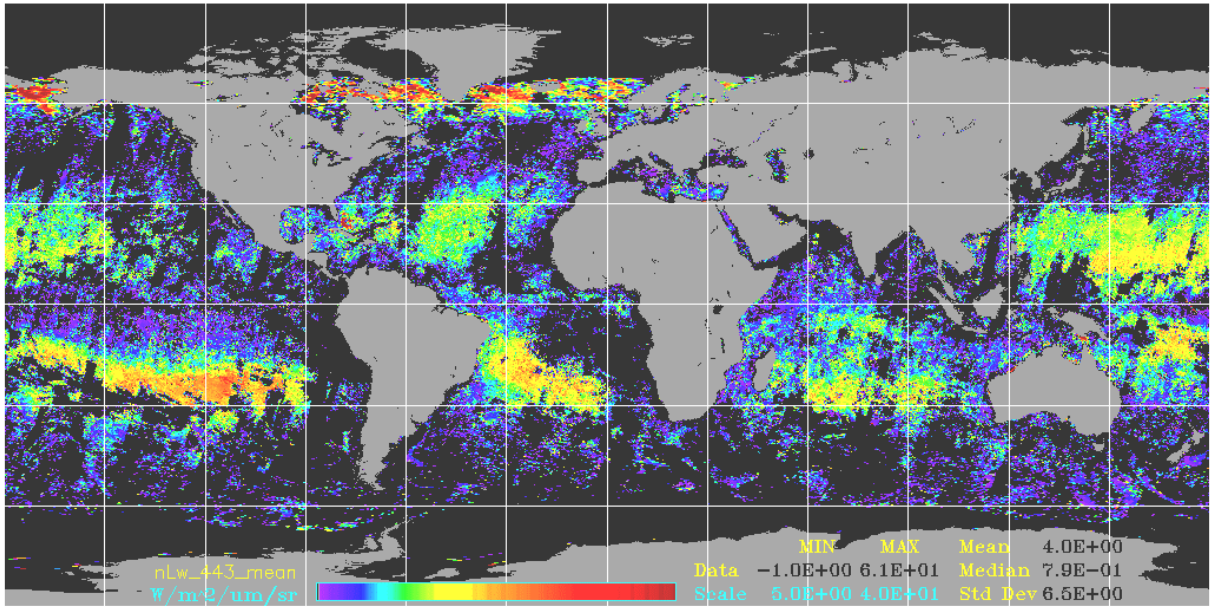
MODIS chlorophyll
Weekly average 2000.305-312

Improper binning of 36-km products



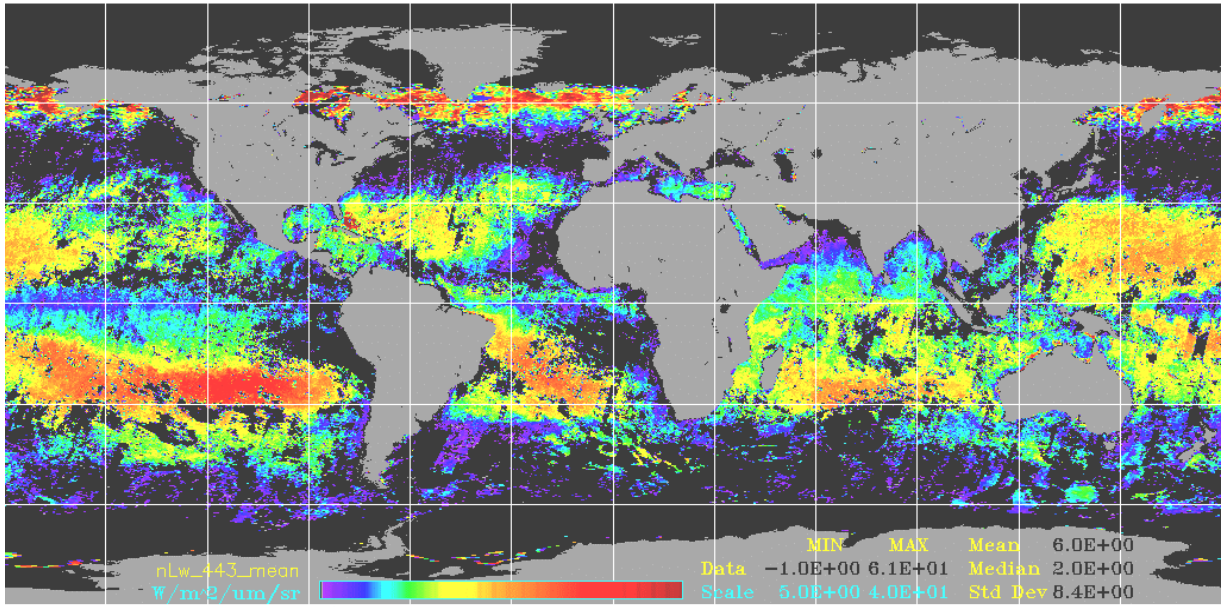
MODIS chlorophyll
Weekly average 2000.313-320

Binning corrected



Norm. Water-leaving Radiance at 443 nm
Weekly average 2000.297-304

MODIS A-side electronics
with U.Miami corrections



Norm. Water-leaving Radiance at 443 nm
Weekly average 2000.305-312

MODIS B-side electronics
without corrections

MODIS Ocean Quality Assurance