

MODIS Ocean Processing

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CSIRO
MARINE RESEARCH

MODIS data level definitions (1)

Raw data	Data in their original packets, as received from the observer.
Level 0	Raw instrument data at original resolution, time ordered, with duplicate packets removed.
Level 1A	Reconstructed unprocessed instrument/payload data at full resolution; any and all communications artefacts (e.g. synchronization frames, communications headers) removed.
Level 1B	Level 1A data that have been processed to sensor units and radiometrically corrected and geolocated.

MODIS data level definitions (2)

- Level 2 Derived geophysical variables at the same resolution and location as the Level 1 source data.
- Level 3 Variables mapped on uniform space-time grid scales, usually with some completeness and consistency.
- Level 4 Model output or results from analyses of lower level data (i.e., variables derived from multiple measurements).

MODIS data from Terra and Aqua

- broadcast in real time for use by DB groundstations (250m, 500m, 1km)
- also transferred via TDRSS to White Sands, New Mexico and then to GSFC
- global data processed at GSFC
- products made available via 3 DAACs

MODIS Standard Products

44 standard MODIS products

3 calibration (level 1)

6 atmosphere

9 land

2 cryosphere

15 ocean

(<http://modis.gsfc.nasa.gov/data/dataproducts.html>)

Level 2 Ocean Products

Total of 78 parameters
(includes some input values)

- 12 ocean colour water leaving radiance
- 24 ocean colour derived parameters
- 18 ocean colour quality control
- 4 sea surface temperature
- 20 SST quality control

Level 3 Binned Ocean Products

- 36 ocean colour parameters
- 4 SST parameters
- quality flags included with parameters
- integerized sinusoidal equal area grid
- 4.63 km spatial resolution
- only bins with valid data are present
- daily, weekly, monthly, yearly

Level 3 Mapped Ocean Products

- 36 ocean colour parameters
- 4 SST parameters
- a cylindrical equidistant map projection
- 4.63 km, 36 km or 1 degree spatial resolution
- daily, weekly, monthly, yearly
- 8 map types per parameter (M, S, N, Q, CF, F1, F2, F3)

Level 4 Binned Ocean Products

- semi-analytic weekly & yearly ocean production indices
- yearly chlorophyll, weekly running year
- statistical annual ocean carbon production, export carbon prod. & new nitrogen prod.
- integerized sinusoidal equal area grid
- 4.63 km spatial resolution
- only bins with valid data are present

Level 4 Mapped Ocean Products

- semi-analytic weekly & yearly ocean production indices
- statistical annual ocean carbon production, export carbon prod., new nitrogen prod. & chlorophyll
- a cylindrical equidistant map projection
- 4.63 km, 36 km or 1 degree resolution
- map types M, S, N, F, W. Not every map type exists for every parameter or resolution

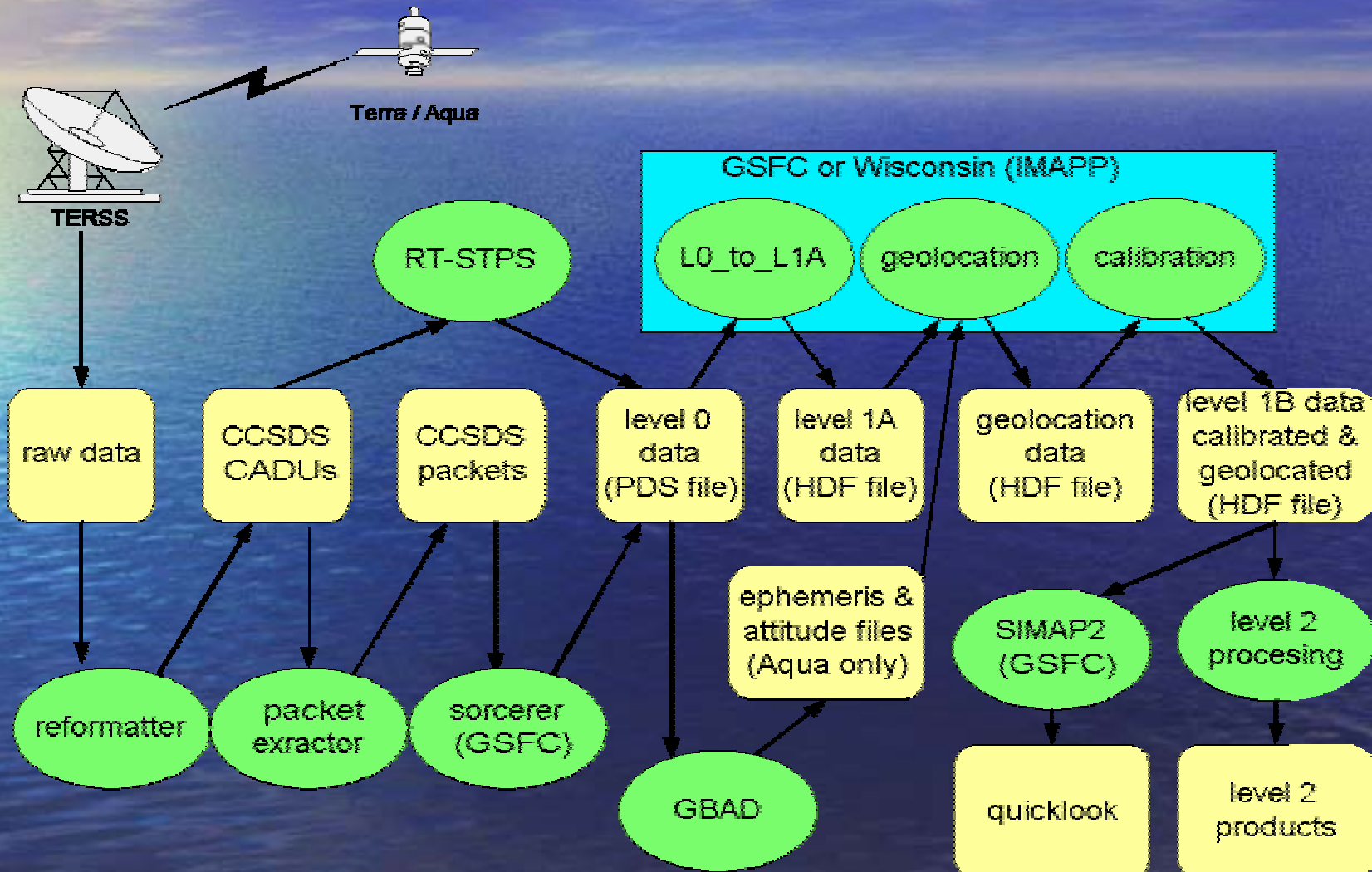
Why process MODIS data?

Most users will use products from DAACs.

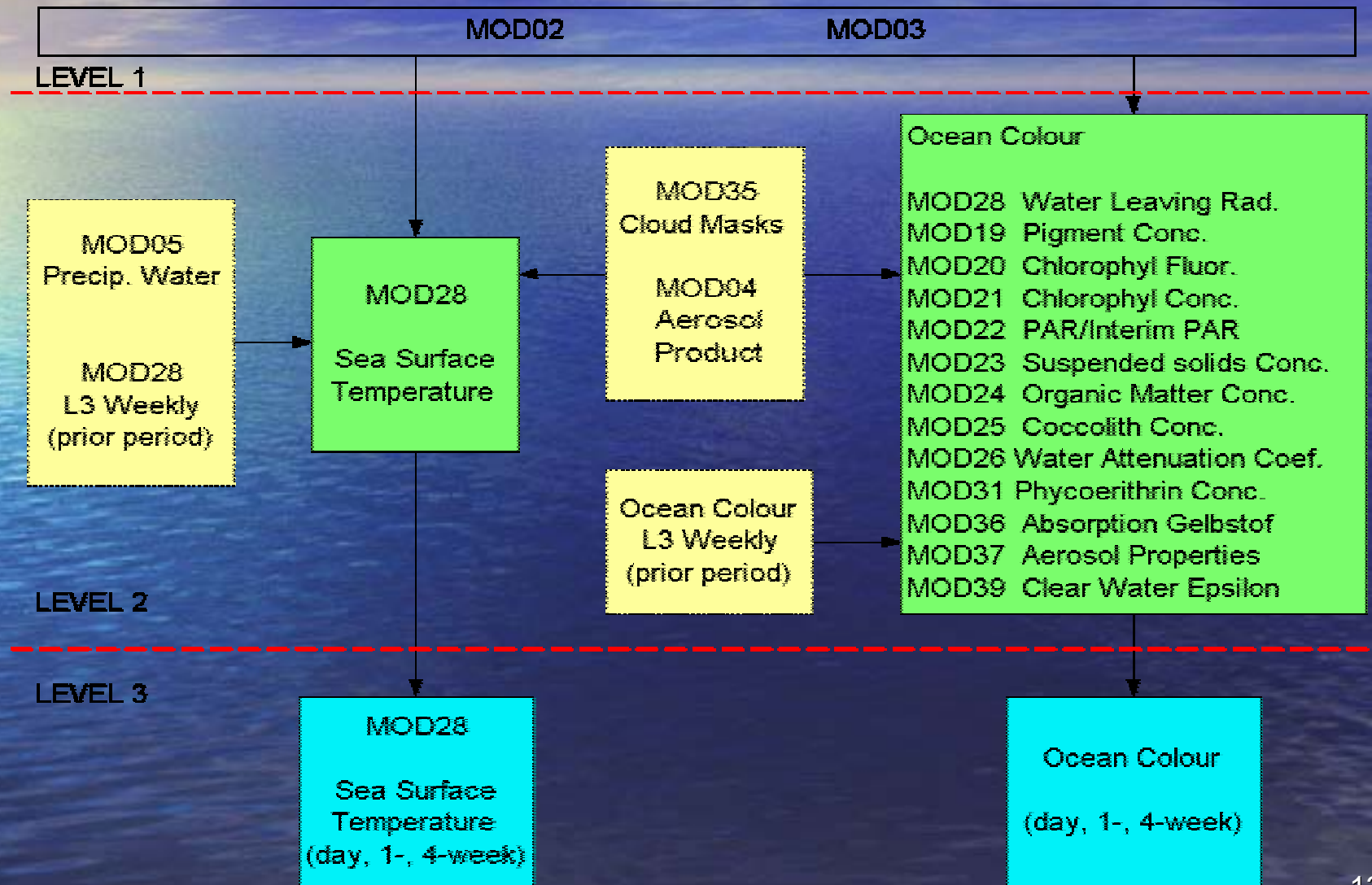
Do your own processing if:

- need products in close to real time
- need better resolution than standard products
- researching new/improved products

MODIS Processing Steps



Level 2 Ocean Processing



Access to MODIS products

Once we are able to routinely produce MODIS ocean products, we could make them available to the wider community if there is a need, using

- our web site
- EOC web site
- ftp
- other?