Multi-Agency Data Sharing

NASA support for ocean colour research

Jeremy Werdell

NASA Goddard Space Flight Center

6 May 2013

NASA Data Sharing Policy

❑ NASA commits to the full and open sharing of Earth science data obtained from NASA Earth observing satellites, sub-orbital platforms and field campaigns with all users as soon as such data become available.

http://science.nasa.gov/earth-science/earth-science-data/data-information-policy/

NASA Data Sharing Policy

❑ NASA commits to the full and open sharing of Earth science data obtained from NASA Earth observing satellites, sub-orbital platforms and field campaigns with all users as soon as such data become available.

❑ There will be *no period of exclusive access* to NASA Earth science data. Following a post-launch checkout period, all data will be made available to the user community. Any variation in access will result solely from user capability, equipment, and connectivity.

http://science.nasa.gov/earth-science/earth-science-data/data-information-policy/

NASA Data Sharing Policy

❑ NASA commits to the full and open sharing of Earth science data obtained from NASA Earth observing satellites, sub-orbital platforms and field campaigns with all users as soon as such data become available.

❑ There will be no period of exclusive access to NASA Earth science data. Following a post-launch checkout period, all data will be made available to the user community. Any variation in access will result solely from user capability, equipment, and connectivity.

❑ NASA will make available all *NASA-generated standard products along with the source code for algorithm software, coefficients, and ancillary data* used to generate these products.

http://science.nasa.gov/earth-science/earth-science-data/data-information-policy/
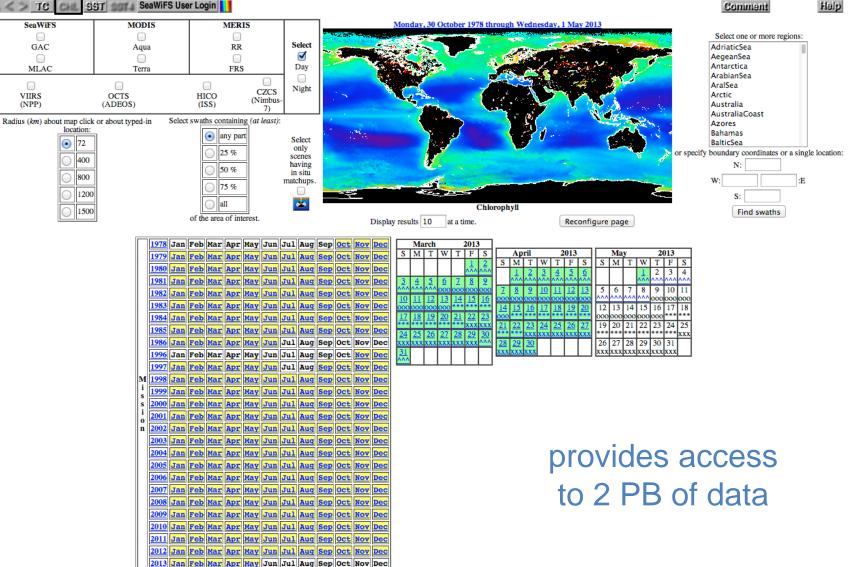
NASA Data Sharing Policy

❏ NASA commits to the full and open sharing of Earth science data obtained from NASA Earth observing satellites, sub-orbital platforms and field campaigns with all users as soon as such data become available.

❏ There will be no period of exclusive access to NASA Earth science data. Following a post-launch checkout period, all data will be made available to the user community. Any variation in access will result solely from user capability, equipment, and connectivity.

❏ NASA will make available all NASA-generated standard products along with the source code for algorithm software, coefficients, and ancillary data used to generate these products.

❏ NASA will enforce a principle of non-discriminatory data access so that all users will be treated equally. For data products supplied from an international partner or another agency, NASA will restrict access only to the extent required by the appropriate Memorandum of Understanding (MOU).
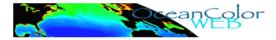
http://science.nasa.gov/earth-science/earth-science-data/data-information-policy/

NASA *in situ* SeaBASS Data Sharing Policy

❑ Follows NASA earth science data and information policy as previously stated

❑ All data publicly available

❑ For research and education use only

❑ Contributors extended authorship for 3-years

❑ Authors should acknowledge data contributors/SeaBASS/NASA/etc.

❑ Delivery to NODC on 3-year anniversary of collection

http://seabass.gsfc.nasa.gov/wiki/article.cgi?article=Access_Policy

NASA Multi-mission Ocean Colour Data Access

provides access
to 2 PB of data

http://oceancolor.gsfc.nasa.gov/cgi/browse.pl

Impediments to Progress

<u>Limited or non-existent access to SOURCE data (Level-0 or Level-1a) with ability to reprocess as calibration and algorithm improvements are made</u><u>.</u>

There are two models of data use:

    1- End user relies only on derived products from source provider

    2- End user uses source data from source provider to produce their own higher level products and/or develop new algorithms or refinements.

We have reached a point where processing rates are fast enough and mission long data volumes are so large (100's of TB) that the main bottleneck is access to source data or products. It is incredibly inefficient to have to download repeated copies of the entire source archive each time a new calibration update is made.

Reprocessing Rates

NASA's Ocean Biology Processing Group's supported missions.

MISSION	X-Factor	Duration	Time to Reprocess
SeaWIFS GAC	8772x	13.27 yrs	0.54 day/mission
SeaWIFS MLAC	1315x	13.27 yrs	3.5 day/mission
Aqua	505x	10.83 yrs	7.75 days/mission
Terra	505x	13.27 yrs	9.42 days/mission
VIIRS	114x	1.51 yrs	4.25 days/mission
CZCS	2192x	6.9 yrs	1.14 days/mission
Aquarius	14000x	1.89 yrs	.042 days/mission
Meris RR	3695x	11.01 yrs	1 day/mission
Meris FRS	568x	11.01 yrs	6.3 days/mission
OCTS	3568x	0.61 yrs	0.063 day/mission

A Path Forward

"Building of a global, multi-mission, long-term (multi-decadal) ocean color times series for climate research" (from D. Antoine opening talk)

- Collaboratively identify & resolve bottlenecks to free & open exchanges of source data & software (satellite + *in situ*)

- Continue pursuit & support of international multi-agency collaborations