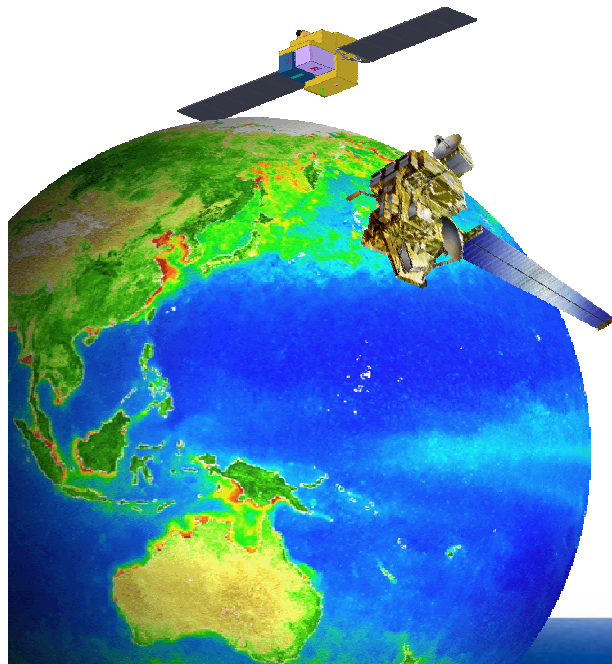




GLI workshop summary



JAXA/EORC
Hiroshi Murakami
Jan. 31 2007



GLI workshop (FY18 GLI PI report) Agenda



09:30~10:45 (75m) Atmosphere 1 (Chaired by Kikuchi)

- T. Nakajima: Aerosol and cloud studies with use of remote sensing and modeling
- T. Y. Nakajima: Estimation of cloud vertical inhomogeneity by multi-wavelength technique
- Takamura: Radiative forcing of aerosol and cloud based on SKYNET observations

10:45-11:00 (15m) break

11:00~11:50 (50m) Atmosphere 2 (Chaired by Hori)

- Kuji: Analysis of aerosol, cloud, and water vapor using GLI NUV, O₂ absorption, and IR channels
- Sano: Aerosol retrieval based on combination use of POLDER and GLI data

11:50~12:15 (25m) Cryosphere (Chaired by Hori)

- Aoki: Estimation of snow/ice parameters and those effects on climate

12:30~14:00 Lunch

14:00~15:15 (75m) Ocean 1 (Chaired by Hosoda)

- Ishizaka: Estimation of Primary Production in the Coastal Region
- Fukushima: Improvement of the GLI ocean color algorithm and monitoring of the trend in the east Asian aerosol characteristics

15:35~15:40 (5m) break

15:40~16:30 (50m) Ocean 2 (Chaired by Hosoda)

- Frouin: Inversion of ocean color
- Kawamura (presented by Sakaida): Improvement of the microwave and infrared SSTs merging method
- 16:30~17:25 (50m) Land (Chaired by Ono)
- Honda: Development of database and simulation of vegetation
- Muramatsu: Net primary production and Land cover mapping from GLI data

17:25~17:35 (10m) break

17:35~18:50 (75m) Discussion (Chaired by Murakami)

- GLI final products/results
- Lessons of the GLI mission (instrument, science and applications) and what we can improve for the next mission

18:50~19:05 (15m) Summary and Closing



FY18 Important items



- (1) Finalize results (papers and new products using the GLI merits) about radiation budget and vegetation production as soon as possible
- (2) Concentrate to works which need for GCOM/SGLI algorithm and applications
 - Develop new methods and new products using GLI, POLDER and MODIS.
 - Obtain basic in-situ data for development and validation of the SGLI algorithm using existing ground observation instruments

The ADEOS-II Science Plan

~ GLI mission has the important purpose of developing and providing the following higher order processed products ~

- (1) Biomass and Primary Productivity Related to Ocean and Its Annual Change on a Global Scale.
- (2) Biomass and Primary Productivity Related to Land and Its Seasonally and Annual Changes on a Global Scale.
- (3) Clouds, Water Vapor, and Aerosols.
- (4) Full Monitoring of Processes Near the Surface of the Earth.



FY18 PI report



Efforts to reduce uncertainty of radiation budget

- Cloud process and properties
 - Estimation of [vertical structure of cloud particle size](#) (Cloud convection process)
 - Estimation of [cloud bottom height](#) by O2 absorption band (763nm)
- Aerosol
 - Evaluation of radiative forcing by aerosols using the ground observation system ([SKYNET](#))
 - Estimation of aerosol properties by [GLI NUV \(380nm\)](#) and [combination with POLDER Polarimetry](#)
 - Evaluation [long term trend](#) of particle size of Asian ocean aerosols
- Snow/ ice
 - Estimation and process of [snow surface albedo](#) considering snow grain size and impurities (dust and black carbon)
- Water vapor
 - Improvement of [column water vapor](#) accuracy over the land

Estimation of primary production and carbon cycle

- Ocean Primary Production
 - [Evaluation and improvement of OPP](#) algorithms by in-situ OPP observations in each ocean areas
- Land Net Primary Production
 - Construction of the of [vegetation surface model database](#) for multiangle satellite observation which improve biomass estimation
 - Estimation and evaluation of [global land NPP](#)

Contribution to numerical models

- The structure of [interactive development between the numerical models and satellite observations](#)

Application possibilities

- Improvement (accuracy and temporal and spatial resolution) of microwave-TIR SST merging
- An new quick technique of ocean color atmospheric correction



Discussion (1) GLI final products/results



Time table for the final report

End of March 2007	Submit FY18 PI report to JAXA
Apr. 26	GCOM-C/EarhCARE symposium
Middle of August	Submit publication list, and 1-page report +PPT (each PI) to JAXA including recommendations to the next mission, GCOM-C
Middle of Sep.	EORC makes interim report (PPT) for the evaluation of the JAXA 5-year plan.
Middle of Oct	Submit GLI final dataset (Standard, research, and new products) to EORC
End of Jan. 2008	Submit to JAXA
End of Mar.	Final report published



Discussion (1) GLI final products/results



Examples of Final standard products and results

0. Radiance

Global mapped radiance (DVD)

1. Atmosphere

- Aerosol and cloud standard products
- Cloud amount and solar irradiance for radiation budget and vegetation production

2. Ocean

- Ocean standard products (SST, Ocean color..)
- Ocean color consistent to SeaWiFS and Aqua/MODIS
- Current by MGD SST and the linear combination CHL
- 250m demonstrate products
- OPP

3. Land

- Mosaic
- NDVI/EVI
- NPP
- 250m products

4. Cryosphere

- Polar region mosaic
- Snow /ice standard products

5. Combination

- All monthly products
- Radiation budget
- Vegetation Production
- Assimilation and contribution to the numerical model
- Combination with AMSR and POLDER, SeaWinds, and ILAS
- Summary of new findings
- Summary of *the experience and proposal to the next mission*



Discussion (2)

Lessons of the GLI mission (instrument, science and applications) and what we can improve for the next mission



1. Instrument

- *GLI and SGLI channels*
 - *380nm was very useful*
 - *250m resolution is useful for both the ocean and land*
 - *We have to evaluate importance of every GLI channel*
- *Calibration*
 - *Leave recommendation in terms of the next sensor*
- *Validation*
 - *Validation data was very limited*
 - *We have to make feasible validation system for the next mission*

2. Science and applications

- *Progress of model research*

3. What we can /should improve for the next mission?

- *We will summarize the experience and proposal to the next mission with the final GLI report*