Fast MODIS data analyses during APEX-E1 (Amami-Oshima, Dec. 11 - 22, 2000)

Satellite Remote-sensing Group.

URL http://www.ccsr.u-tokyo.ac.jp/docs/APEXAMA/apex_amami.html

EORC / NASDA

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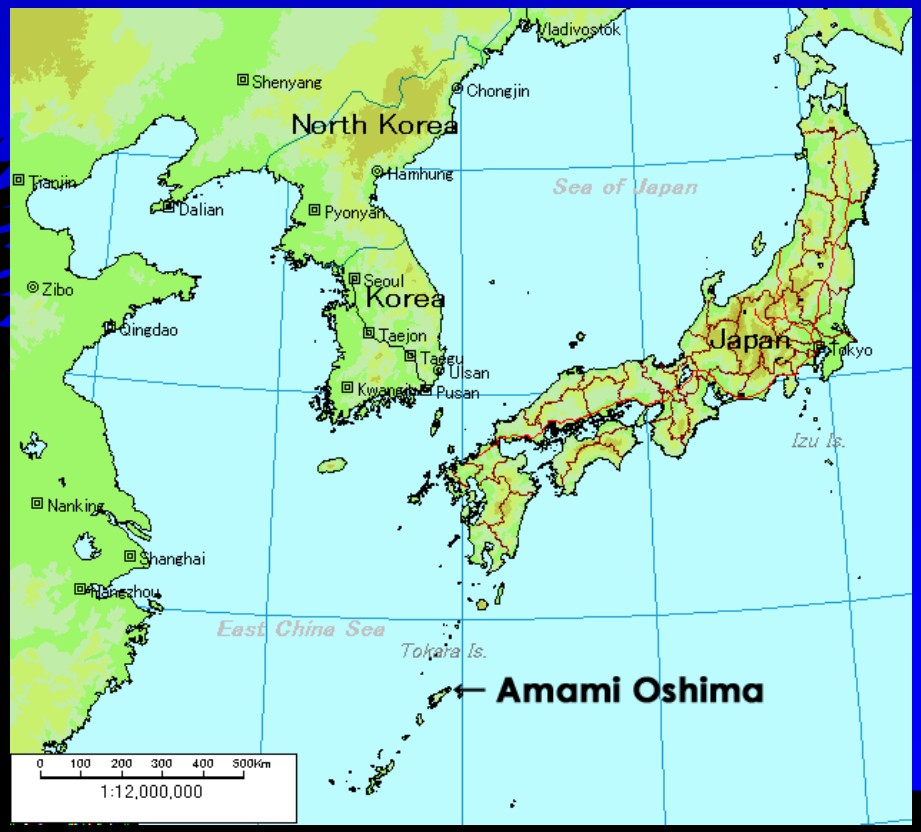
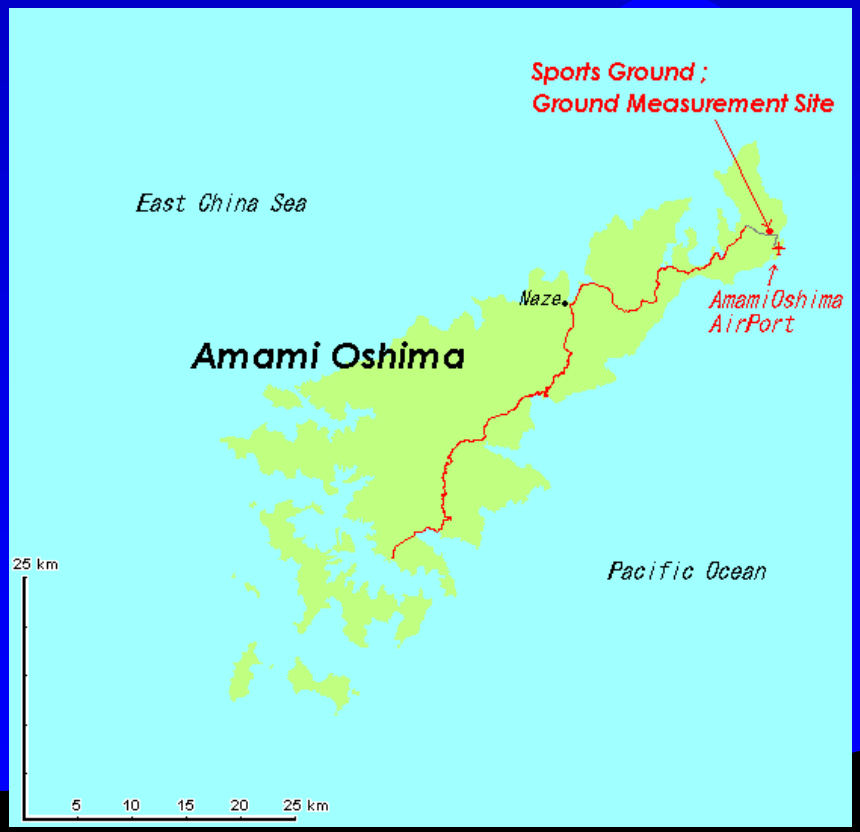
APEX(Asian **A**tmospheric **P**articulate **E**nvironment Change **E**xperiment)
Organized by Prof. Teruyuki Nakajima (CCSR/Univ. Tokyo)

Location of ground base segment

Amami Oshima (28.19'N, 129.24'E)





T.Y.Nakajima

MODIS Science Team Meeting (2001)

Member of the APEX-E1 Satellite Remote-sensing

- Takashi Y. Nakajima (EORC/NASDA)
  - Cloud microphysical retrieval.
- Akiko Higurashi (NIES)
  - Aerosol microphysicl retrieval. (4 channels method)
- Yukari Takayabu (CCSR/University of Tokyo)
  - TRMM PR
- Yi Liu (EORC/NASDA)
  - Aerosol microphysicl retrieval. (2 channels method)
- Masahiro Watanabe (CCSR/University of Tokyo)
  - Visualization and Web management.
- *Special thanks to,*
  - *C. Lynnes, M. King, Y. Kaufman, B. Ridgway (GSFC).*

Fast MODIS data analyses

- **Sensors**
  - **MODIS on Terra**
- **Objective analysis dataset**
  - **GANAL /Japan Meteorological Agency**
- **Data Receiving Stations**
  - **GSFC/NASA.**
- **Data Analysis Systems**
  - **EORC/NASDA, NIES.**
- **Algorithms**
  - **GLI L2 algorithms. ->** Format conversion is needed

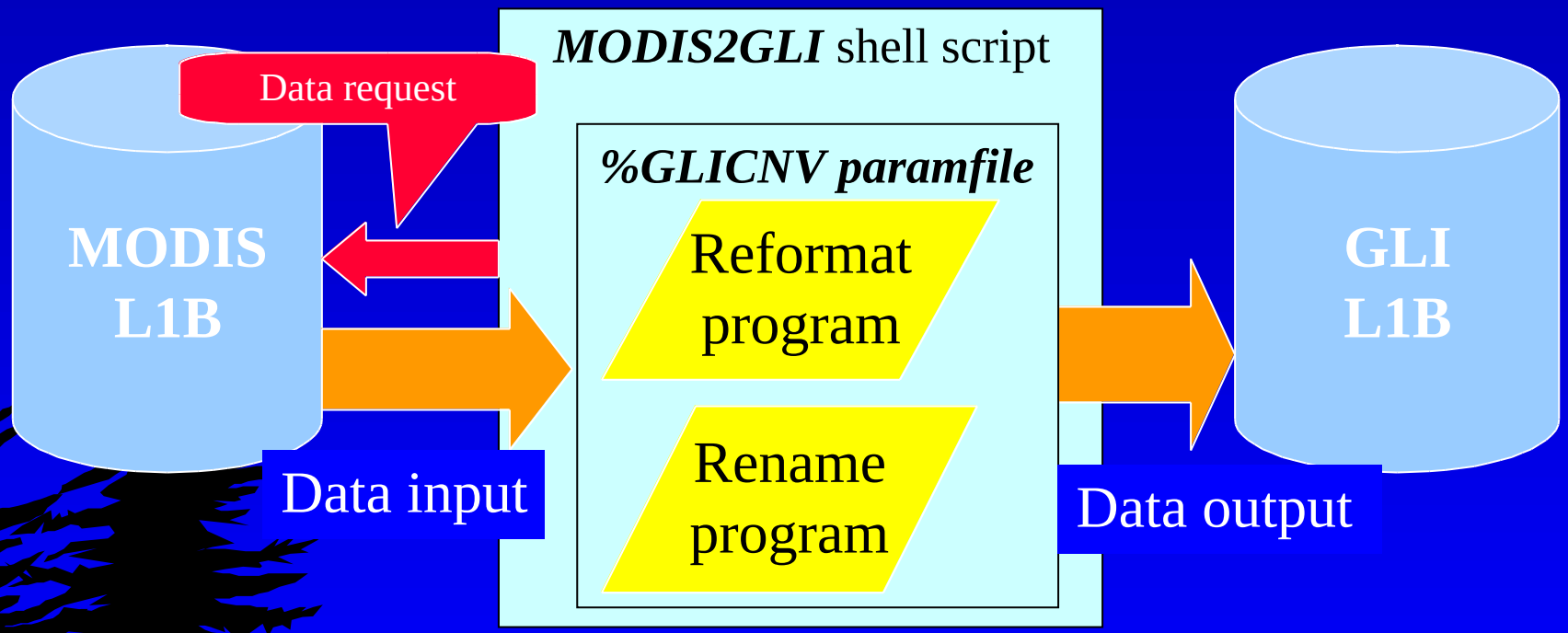
GLICNV command.

- ***GLICNV*** command converts MODIS Level-1B data to GLI data format.
- GLI L2 system can analyze MODIS data.

	MODIS	GLI
Format	EOS-HDF	NCSA-HDF
Bit structure	16bits (flag (1)+DN(15))	16bits (flag(4*)+DN(12))
Overlap	No overlap	8 scan lines
DN-Radiance converting table	Simple	Complex due to Piece-wise channels

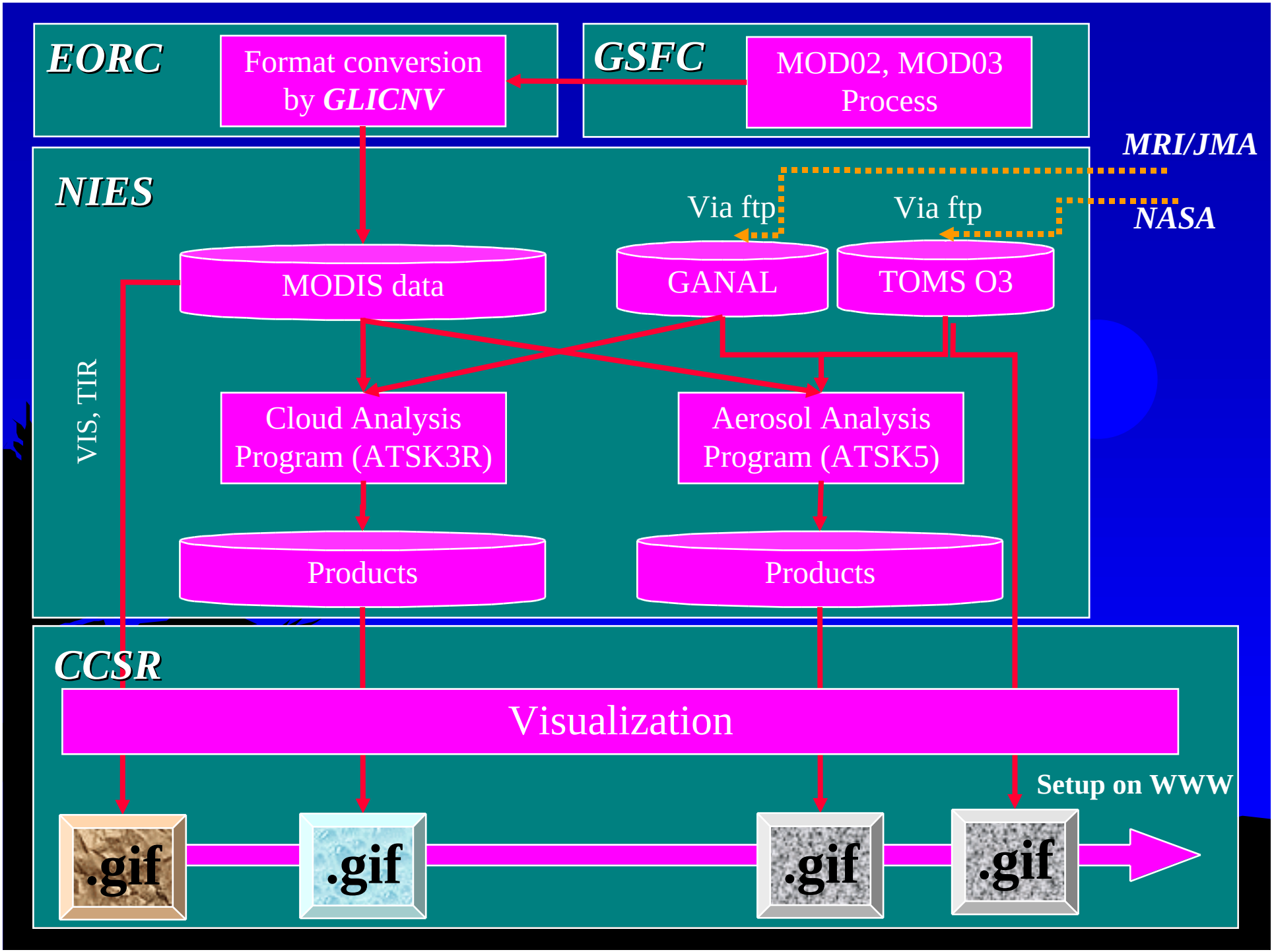
*Lost data/Saturation/Bright target recovery/Gain

Reformat flow



An easy operation.

Operator sets name of input and output directory and starts the shell !


EORC
Format conversion by GLICNV
GSFC
MOD02, MOD03 Process
MRI/JMA
NASA
NIES
Via ftp
Via ftp
MODIS data
GANAL
TOMS O3
VIS, TIR
Cloud Analysis Program (ATSK3R)
Aerosol Analysis Program (ATSK5)
Products
Products
CCSR
Visualization
Setup on WWW
.gif
.gif
.gif
.gif

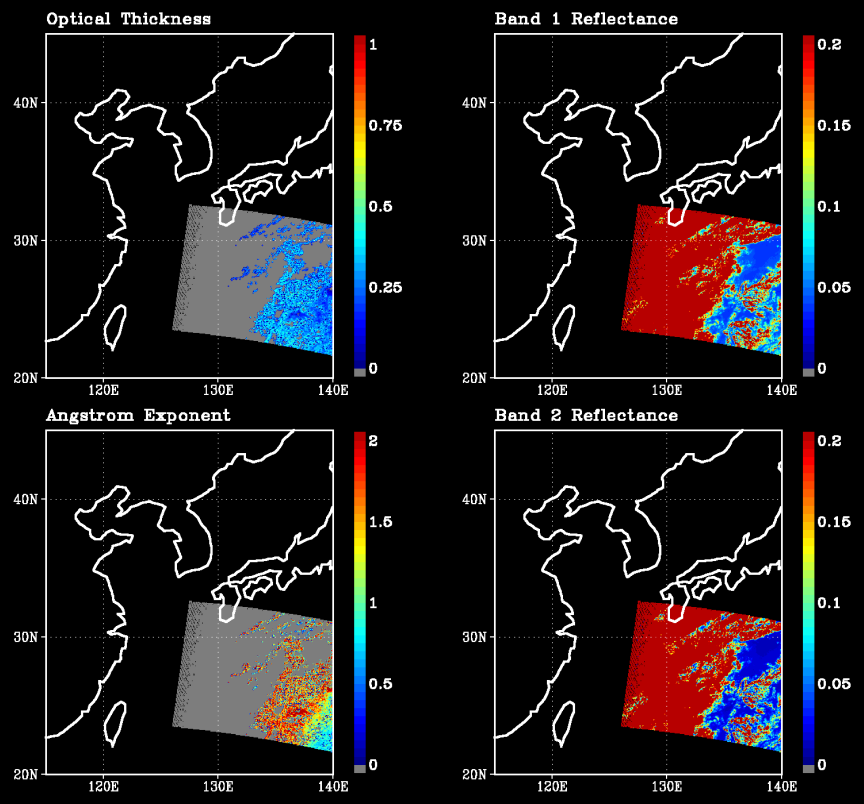
MODIS Aerosol Parameters (Ver.1)

Date: 17 DEC 2000

MODIS Level-1b data provided by:
NASA-MODIS/GES-DAAC.

Retrieval Algorithm:
ATSK5 on the GLI system.

Processed by:
Yi Liu (EORC/NASDA)



T.Y.Nakajima

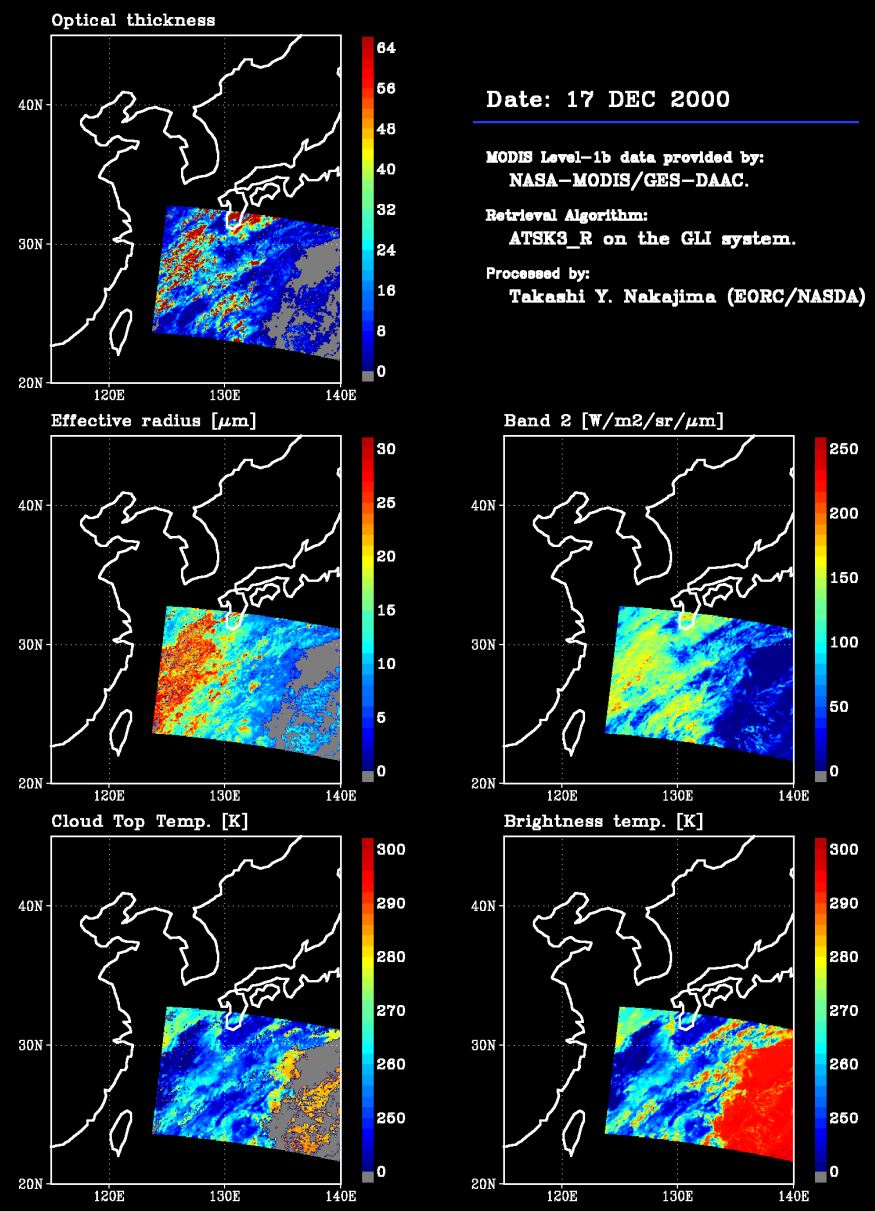
MODIS Cloud Parameters (Ver.2)

Date: 17 DEC 2000

MODIS Level-1b data provided by:
NASA-MODIS/GES-DAAC.

Retrieval Algorithm:
ATSK3_R on the GLI system.

Processed by:
Takashi Y. Nakajima (EORC/NASDA)



MODIS Science Team Meeting (2001)

Time Sequence

- Time Sequence in Japan Standard Time. GMT-9hours

	Typical	(Fastest)
Observation	11:30.	
Level-1b in GSFC	04:00.	(20:00)
Data transfer to EORC	04:15.	(20:15)
Data analysis	05:15.	(21:15)
Results transfer to CCSR	05:20.	(21:20)
Web upload	05:30.	(21:30)
Obs. + *x* hours	+18	(+10)

Summary

- We analyzed MODIS data within about 18 hrs after observations, in spite of they are not direct-broadcasting data but normal down-link data.
- In our experiences, the minimum time delay can be shorten only 10 hrs including L2 processing in Japan.
- FTP process should be developed with more cares because it can sometimes be broken by unexpected reasons.

Summary (cont.)

- The fast MODIS data analysis gives positive impacts to the field experiment like APEX-E1, because the commander can decide the most effective next command seeing the latest observed results by all installed instruments.
- Comparisons between our products, aircraft and MODIS L2 will be made in near future.

Thank you for your collaboration
to the
APEX-E1 MODIS analyses.