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# RA II Pilot Project Newsletter

DEVELOPING SUPPORT FOR NATIONAL METEOROLOGICAL AND  
HYDROLOGICAL SERVICES IN SATELLITE DATA, PRODUCTS AND TRAINING

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### **CMA to host the 1st Asia/Oceania Users' Conference**

The first Asia/Oceania Meteorological Satellite Users' Conference will take place 1-2 November, 2010, Beijing, China. The China Meteorology Administration is the host, the World Meteorological Organization, the intergovernmental Group on Earth Observations, the Japan Meteorological Agency and other meteorological satellite operators in Asia/Oceanic region are co-sponsors.

The Conference, to be held two days prior to the Ministerial Meeting of the intergovernmental Group on Earth

Observations in Beijing, is designed to provide information on current activities and plans of both satellite operators and satellite data users in the Asia/Oceania region. It is a venue for two-way communication between operators and users on the existing and potential satellite data applications, to determine user needs for new products, and to assess the potential application and societal benefits of new satellite capabilities.

Also, the conference provides a chance to review and introduce the rich experiences over the past decades in developing payloads for polar-orbiting and geostationary meteorological satellites, data reception & processing, product research & development, remote sensing applications, and data access

and service in this region. It is anticipated that holding such a conference shall promote exchange and cooperation among users, enhance the capacity building in application of satellite data and products, improve the remote sensing service for disaster prevention and mitigation and in response to climate change, advance the satellite observation technology, and promote synergetic development of meteorological satellite observation in the region.

More information about the conference is available at the website

<http://satellite.cma.gov.cn/conference/index.html>

*(Xuebao WU, National Satellite Meteorological Center of CMA)*

## **CMACast - The Next Generation Data Broadcast System of CMA**

Currently, CMA has three satellite-based data broadcast system, FENGYUNCast, PCVSAT and DVB-S. FENGYUNCast is primarily used to distribute images and derived products from China's Fengyun series satellites to both domestic and international users. PCVSAT and DVB-S are primarily used to distribute meteorological data and products. FENGYUNCast uses AsiaSat-4 C-band transponder to cover Asia and part of south western pacific area. PCVSAT and DVB-S use AsiaSat-5 Ku-band transponder to cover China and surrounding area. FENGYUNCast is also the regional GEONETCast Network Centre (GNC) in Asia.

In order to provide more data contents and better services to users, CMA started the upgrading process to build the next generation data broadcast system, CMACast, since 2008. CMACast is a multimedia dissemination

system based on second-generation Digital Video Broadcast (DVB-S2) technology with both file and multimedia transmission capability. It will use a whole 36MHz C-band transponder of AsiaSat-4 and transmission capacity could be increased up to 70Mbps. Besides high data rate, CMACast will have enhanced user management and improved interoperability in cooperation with other regional GEONETCast Network Centres (GNC), which are EUMETCast and GEONETCast Americas at present.

Fig.1. is the global view of the GEONETCast satellite coverage. EUMETCast uses Euro Bird 9a Ku-band, Atlantic Bird 3 C-band and NSS-806 C-band to cover Europe, Africa, Middle East, North Atlantic and part of Americas. GEONETCast Americas uses Intelsat-9 C-band to cover most of North, Central, and South America. FENGYUNCast uses AsiaSat-4 C-band to cover Asia and part of south western Pacific area. CMACast will keep using AsiaSat-4 so its coverage will be the same as FENGYUNCast.

Fig. 2 is the system architecture of CMACast. The integrated dissemination platform of hub station is located at the campus of CMA headquarter. It will be operated and maintained by National Meteorological Information Centre (NMIC). The satellite uplink station is located at Beijing Ground Station of National Satellite Meteorological Centre (NSMC). Two dedicated fiber lines are used to transmit the encoded data files and multimedia streams from Hub station to uplink station. Each User terminal dispersed in the footprint of the satellite decodes the satellite signal and recreates data file according to a defined directory and data file name structure. Its basic configuration includes a C-band receive only antenna, LNB, DVB-S2 receiver, PC/server and receiving software package.

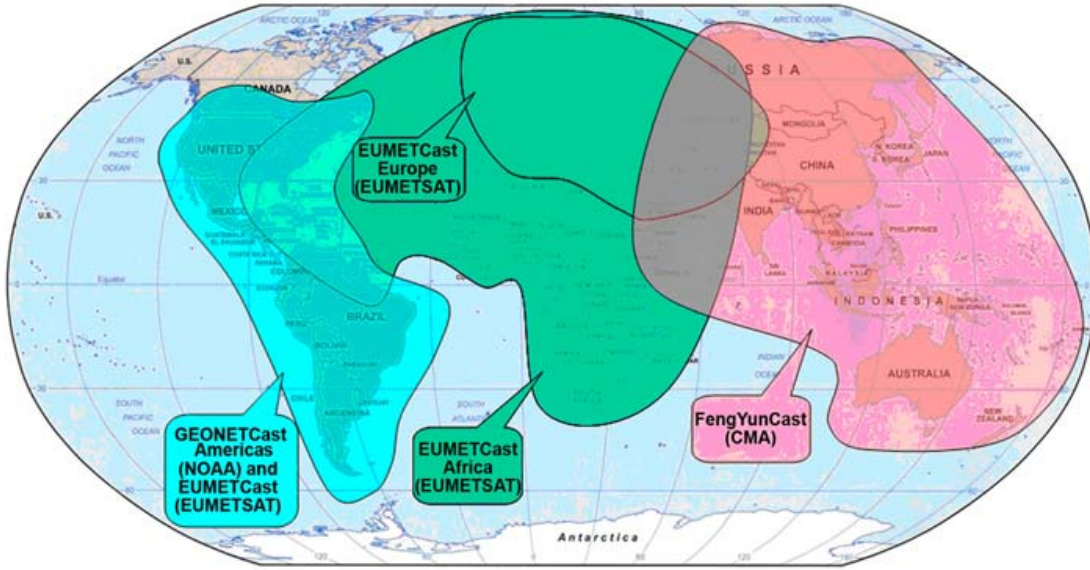


Fig.1. Global Coverage of GEONETCast

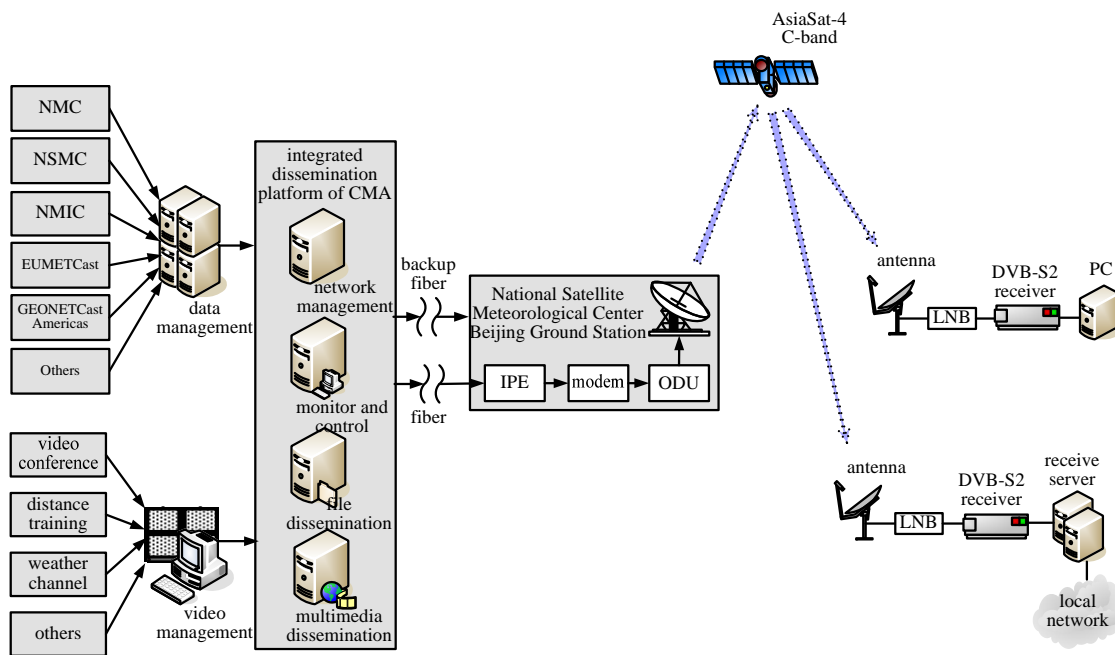


Fig.2. System Architecture of CMACast

The new and enhanced features available in CMACast include:

- Entire 36MHz C-band transponder, single carrier transmission, supporting 1.8-2.4 meter antenna within satellite footprint
- UP to 70Mbps data rate at DVB-S2, 8PSK 5/6 modulation
- Both data file and multimedia transmission with any file format and multimedia stream

- Separated broadcast channels and directories allowing users to choose the products
- User terminal Authorization and data encryption
- Easy extension of geographical coverage by DVB turnarounds
- Use of cost-effective, on-shelf DVB-S2 equipment

Data and products delivered by CMACast will include:

- Global surface observing and upper-air sounding data
- Numerical weather forecasts products
- Fengyun series Satellite data and derived products
- China next generation weather RADAR data and products
- Other relevant meteorological products
- Distance education and training

CMACast will be operational by the end of 2010. All data broadcast services on FENGYUNCast, PCVSAT and DVB-S will be consolidated into CMACast. CMACast will be the only satellite-based data broadcast system of CMA and will replace FENGYUNCast as CMA's contribution to GEONETCast.

(Chunfang Wang, National Meteorological Information Center of CMA)

### **New JMA service using McIDAS ADDE starts**

The Japan Meteorological Agency (JMA) has begun operating a new service using an ADDE (Abstract Data Distribution Environment) server to enable the provision of training environments using client viewer software.

The ADDE server software was developed by SSEC (the Space Science and Engineering Center at the University of Wisconsin-Madison). Users can display image data from JMA's ADDE server through the client software by specifying the date, data type, projection and other information as necessary.

#### **1. Client viewer software**

A number of client software packages (namely McIDAS-V, VisAD and Unidata IDV) can be used. These are available as free downloads from the following websites:

McIDAS-V:

<http://www.ssec.wisc.edu/mcidas/software/v/>

VisAD:

<http://www.ssec.wisc.edu/~billh/visad.html>

Unidata IDV:

<http://www.unidata.ucar.edu/software/idv/index.html>

#### **2. Data provided by the ADDE server**

JMA's ADDE server provides past data for training and updates it as necessary, as the service is mainly intended for users to become familiar with the client software. The Agency plans to add data for case studies of phenomena such as tropical cyclones, developing depressions and volcanic ash appearance at an early date.

The following data are available as of 1 August 2010:

Satellite: MTSAT-1R

Date: 2 – 12 Aug. 2009 (T0908 MORAKOT)

Channels: VIS, IR1, IR2, IR3 and IR4

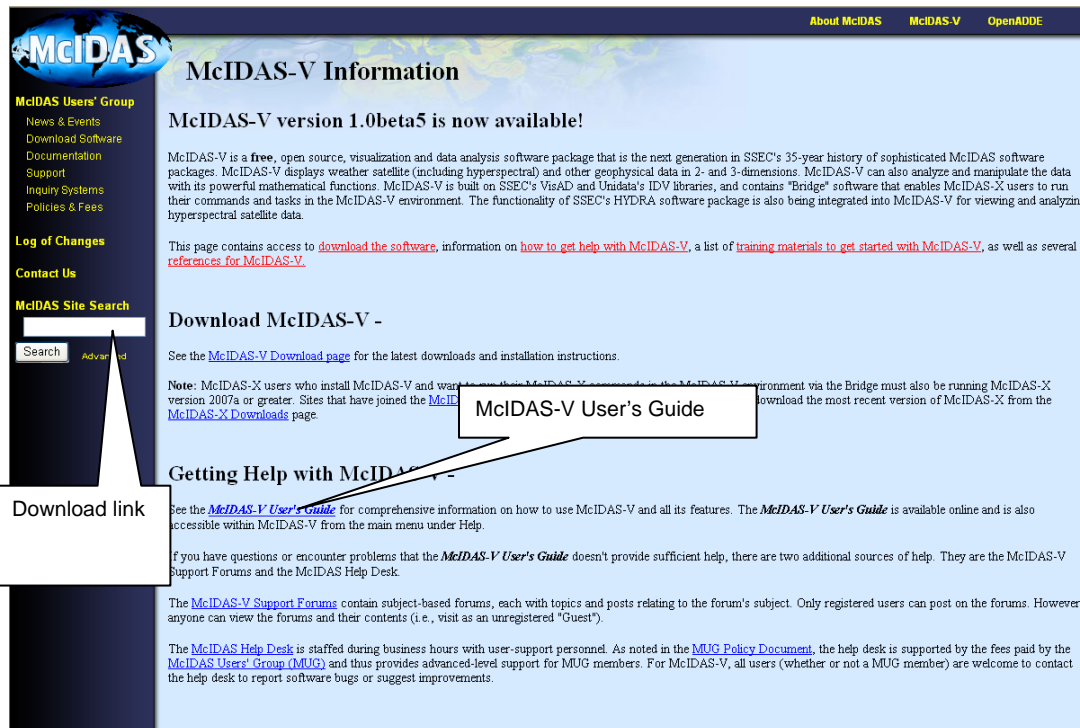


Fig. 3. Example of client software website (McIDAS-V)

(<http://www.ssec.wisc.edu/mcidas/software/v/>)

## Appendix

### Installing client software

This article describes the procedure for using McIDAS-V as an example of client viewer software with JMA's ADDE system.

For details of installation and setup of other client software, please consult the individual web pages of each one. The above websites provide detailed instructions for installing the software and troubleshooting tips.

### Access to JMA's ADDE server

This paragraph describes the procedure for accessing JMA's ADDE server and displaying satellite image data using McIDAS-V.

(1) Install the McIDAS-V software on your

PC as instructed by the installer.

(2) Type "mscadde.kishou.go.jp" in the **Server** box and "SAMPLE" in the **Dataset** box, then click the **Connect** button (Fig. 4).

(3) Select AREA-TEST1 from the **Image Type** pull-down menu. Click the **Absolute** tab in **Times** to see the list of satellite image data on JMA's ADDE server.

Choose one or more data sets to view in Times (left or right window) and a channel from the **Channel** pull-down menu. Click the **Add Source** button, and another screen will be shown (Fig. 5).

(4) Click the **Create Display** button to show the satellite image (Fig. 6).

(Motoo HAYASHI, JMA)



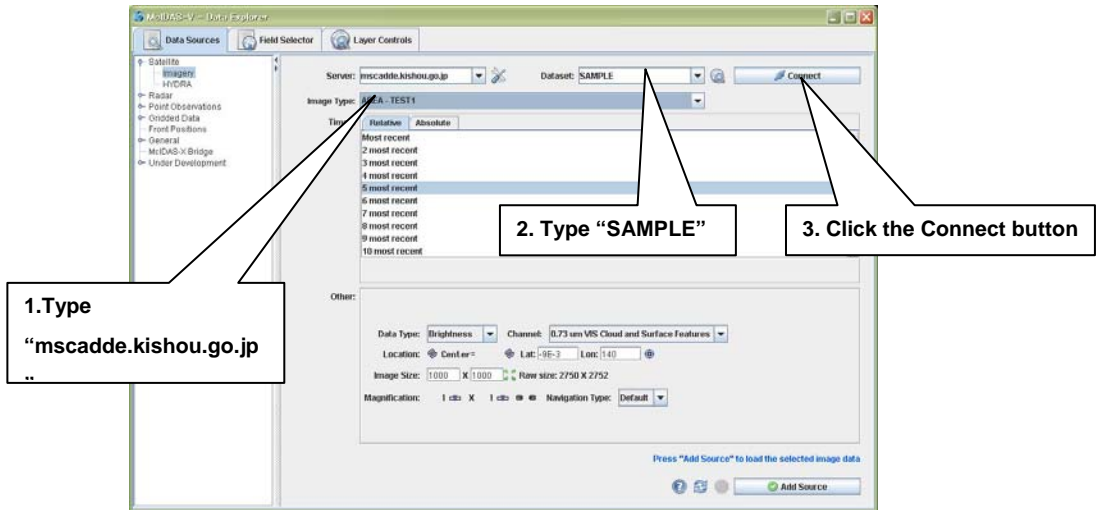


Fig. 4. Data Explorer window of McIDAS-V

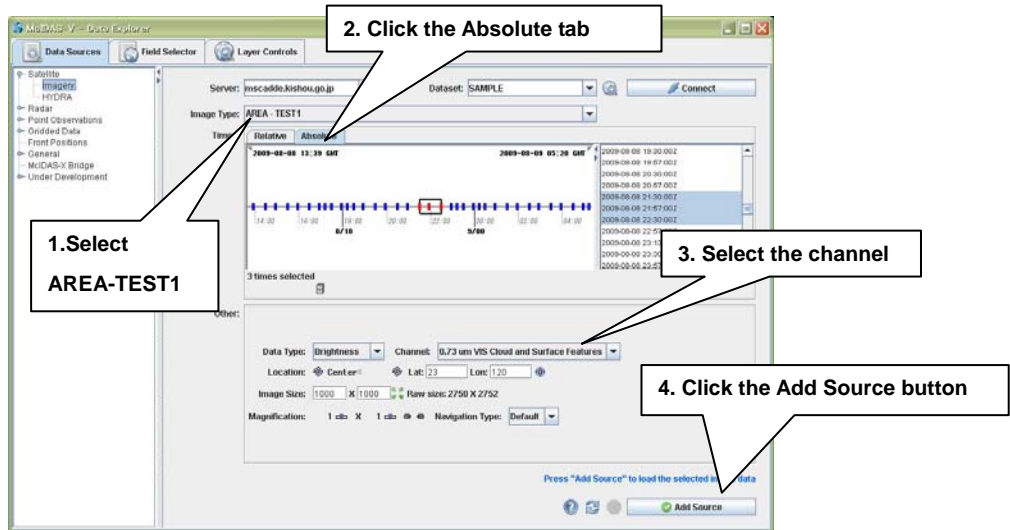


Fig. 5. Operation of the Data Explorer window in McIDAS-V

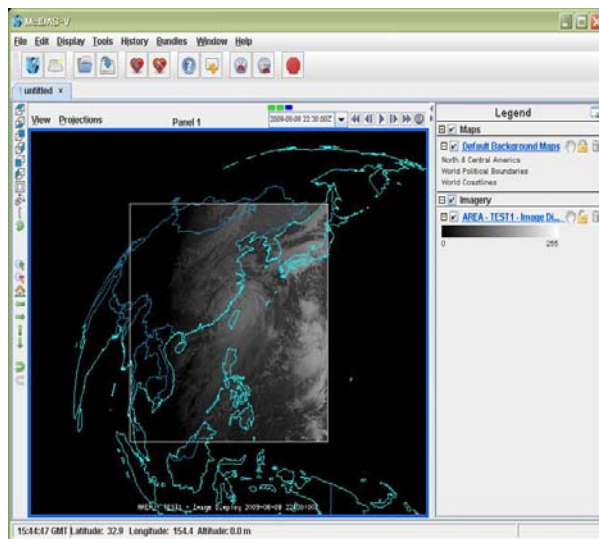


Fig. 6. Example of MTSAT image display

## **Members of the Coordinating Group**

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## From the Co-editors

The co-editors invite contributions to the newsletter. Although it is assumed that the major contributors for the time being will be satellite operators, we also welcome articles (short contributions of less than a page are fine) from all RA II Members, regardless of whether they are registered with the WMO Secretariat as members of the Pilot Project Coordinating Group. We look forward to receiving your contributions to the newsletter.

From August 2010, Mr. Jae-Chul LIM has become a new co-coordinator of KMA, and he will continue the co-editor's role.

*(Toshiyuki KURINO, JMA, and Jae-Chul LIM, KMA)*

## RA II Pilot Project Mailing Lists

Two mailing lists for discussion on the pilot project will soon be set up using the Google Groups service, and will be implemented either through the Google Groups web interface or by e-mail.

One list is for Pilot Project Coordinating Group members who are already registered with the WMO's Regional Office for Asia and the South-West Pacific.

**Group name:** ra2pp\_sat\_cg

**Group home page:**

[http://groups.google.com/group/ra2pp\\_sat\\_cg](http://groups.google.com/group/ra2pp_sat_cg)

**Group email address:**

[ra2pp\\_sat\\_cg@googlegroups.com](mailto:ra2pp_sat_cg@googlegroups.com)

The other list is for RA II Members in general.

**Group name:** ra2pp\_sat

**Group home page:**

[http://groups.google.com/group/ra2pp\\_sat](http://groups.google.com/group/ra2pp_sat)

**Group email address:**

[ra2pp\\_sat@googlegroups.com](mailto:ra2pp_sat@googlegroups.com)

## RA II Pilot Project Home Page

<http://www.wmo.int/pages/prog/sat/RAII-PilotProject.html>

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