# HimawariCast Newsletter

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## JMA's HimawariCast training event in Samoa and Sri Lanka

### 1. Sri Lanka

A HimawariCast receiving system was installed at the Department of Meteorology (DOM) HQ in Colombo, Sri Lanka, in August 2017. Against this background, JMA dispatched experts to DOM HQ to provide training on SATAID utilization and satellite image interpretation from August 22nd to 24th. Around 10 forecasters from the HQ and 3 from the Bandaranaike International Airport office attended the training, working on forecasting operations in turn.

The attendees eagerly engaged in exercises on matters such as satellite image interpretation and RGB composite image utilization using SATAID for actual cases around Sri Lanka. This work helped to highlight the importance of satellite image utilization with NWP data and other types of observation data, and included a real-time analysis demonstration relating to a heavy rain event that caused landslides and flooding in southwestern Sri Lanka from 24th to 26th May 2017.

The JMA delegation very much appreciated the kind hospitality shown by DOM during their stay in Sri Lanka. JMA expects the training to be useful in related operations, and looks forward to ongoing collaborative relations with the DOM.

(Junya Fukuda and Takumi Maruyama)

### 2. Samoa

Training on SATAID utilization and satellite image interpretation was provided at the Samoa Meteorological Division (SMD) from 7 to 10 August 2017 following the installation of a HimawariCast receiving system in March 2017. All SMD attendees were actively engaged in the training during their work on forecasting, and were involved in active discussions.

As tropical cyclones (TCs) regularly hit Samoa, focus was placed on Himawari image interpretation and RGB composite image utilization in SATAID, with case studies involving heavy rain caused by a TC in December 2012 and active convective clouds around a TC in May 2017. JMA staff also attended an awareness program organized by SMD and the Disaster Management Office to educate primary school students on Upolu Island about possible disasters stemming from tsunami, tropical cyclones and climate change.

The JMA delegation very much appreciated the warm hospitality provided by SMD staff, and looks forward to continued cooperative relations with SMD through HimawariCast and related training.

(Hiroshi Ishihara and Yasuhiko Sumida)



Fig. 1 Seminar at the DOM
(See p.4 for SMD pictures.)

# Improvement of Himawari-8 observation data quality

The Japan Meteorological Agency (JMA) modified its Himawari-8 ground processing system at 04:00 UTC on 25 July 2017 in order to improve the quality of Himawari-8 imagery. The modification includes reduction of banding and stripe noise.

## Reduction of banding and stripe noise

Himawari-8/Advanced Himawari Imager (AHI-8) imagery from the visible and near-infrared (VNIR) bands (i.e., Bands 1 to 6) had included banding and stripe noise in the east-west direction (Figs. 2 (a) and 3 (a)). These were generally attributable to incorrect calibration slopes derived from solar diffuser (SD) observation by the Himawari-8 satellite. Specifically in this regard, the bidirectional reflectance distribution function (BRDF) of the AHI-8 SD underwent an erroneous reversion from north to south during calibration slope derivation.

In relation to AHI-8 VNIR imagery, calibration coefficients for Bands 1 to 6 were corrected at 04:00 UTC on 25 July 2017. The new calibration slopes are expected to reduce banding (Fig. 2 (b)) and striping (Fig. 3(b)).
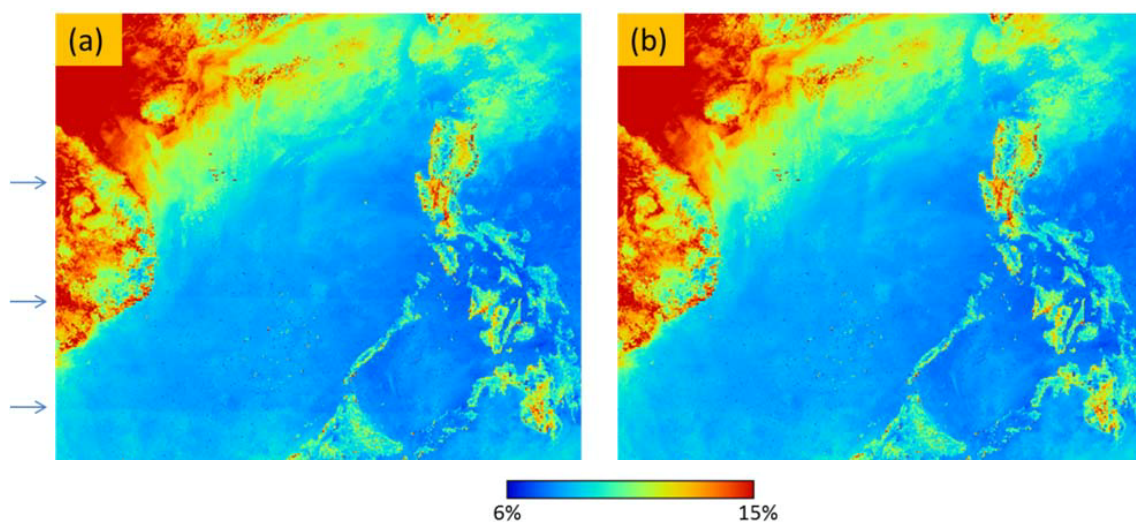


Fig. 2 (a) Minimum albedos [%] of AHI-8 Band 2 as extracted from 22 HSDs for 03:10 UTC from 10 to 31 March 2016. (b) As per (a), but with bug-fixed calibration slope computation. The extraction is performed at each HSD pixel for (a) and (b). The three clear lines observed at swath boundaries (i.e., banding) in (a) are significantly reduced in (b).
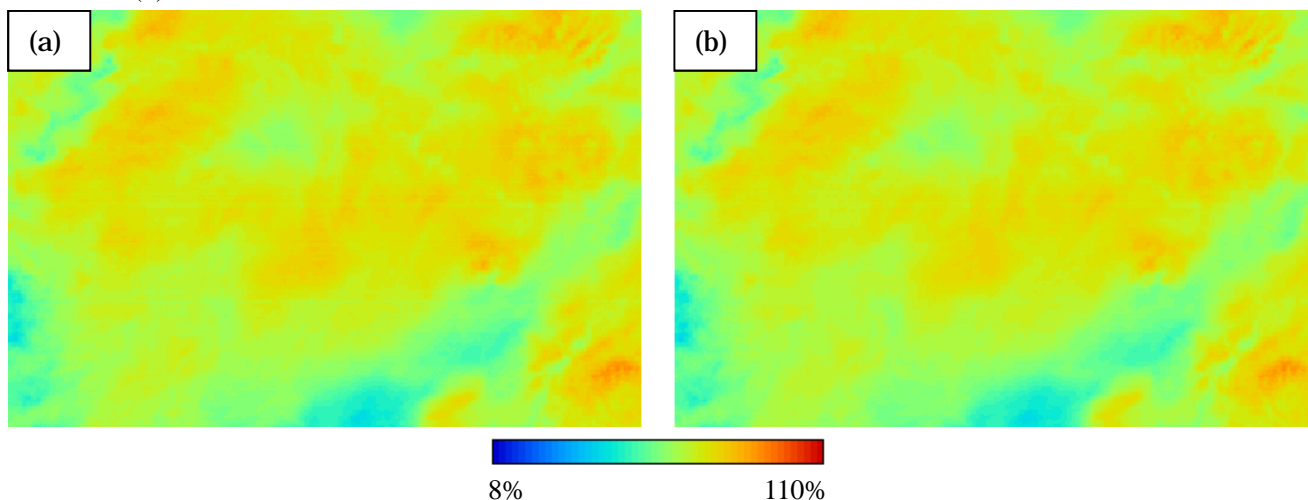


Fig. 3 (a) Albedos [%] of AHI-8 Band 3 at 03:00 UTC on 1 July 2017. (b) As per (a), but with bug-fixed calibration slope computation. The clear striping seen in (a) is mitigated in (b).

Figure 2 shows an example for Band 2, which exhibited the most significant improvement. Improvements were also seen with Bands 3 to 6, which are disseminated via HimawariCast.

The new slopes were determined by averaging solar diffuser observation data collected from 7 March to 22 May 2015. As the same SD observation dataset continues to be used after the updates, any changes in AHI-8 characteristics, such as sensitivity degradation, are not taken into account in the updated slopes.

(Kenji Date)

# Useful SATAID functions – an introduction

NMHS user query:
- In SATAID, I want to lay a symbol (e.g., an open circle) over a location in a satellite image and the name of the place nearby. I guess this should be easy, but I can't find any instructions for it in the user manual.

This article outlines how to place a symbol and an annotation on a satellite image and to save/read the setting of the drawing in SATAID (see also *Section 5.3.4 Drawing* of the SATAID operational manual at http://www.data.jma.go.jp/mscweb/en/himawari89/himawari_cast/note/SATAIDmanual.pdf). Square brackets below indicate names of radio buttons, check boxes, panels or menus.

Rendering symbols and annotations on a satellite image and saving drawing settings:
1) With the desired satellite image displayed, click the [Draw] radio button in the Function group on the operational panel on the right (Fig. 4) and [Extra] in the Draw group to open the [Extra drawing] window (Fig. 5).
2) With the [Extra drawing] window open, symbols and annotations can be applied to the satellite image. For example, dashed or solid ellipses and circles can be rendered, flex ovals can be drawn, and text can be pasted.
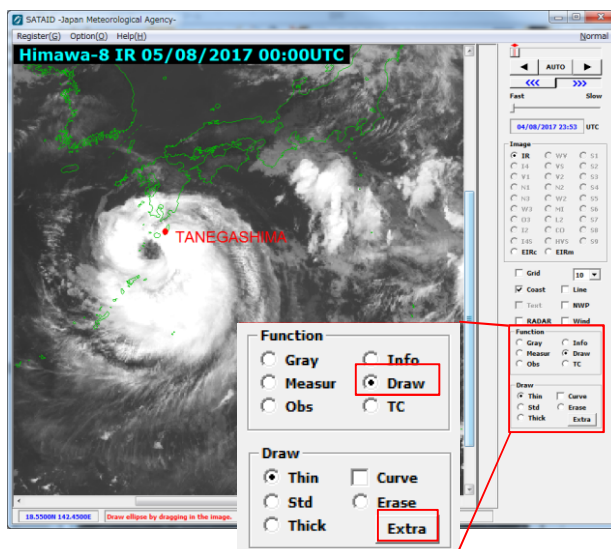


Fig. 4 [Draw] radio button and [Extra] button on the operational panel
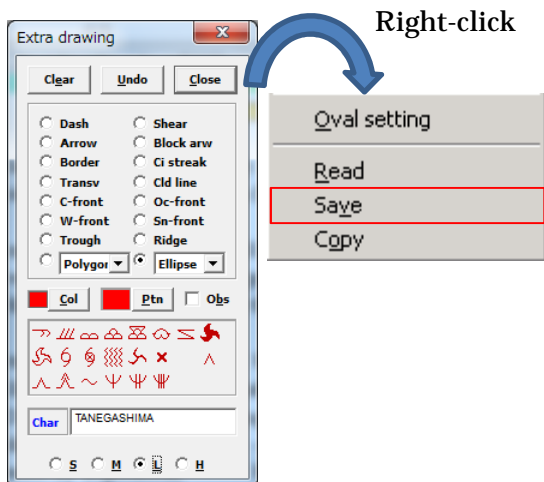


Fig. 5 [Extra drawing] panel for drawing symbols, applying annotation data and saving settings
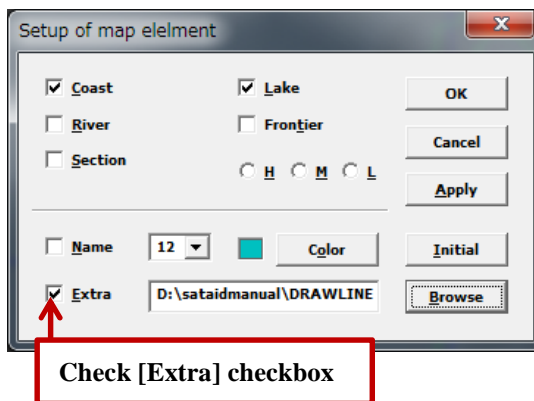


Fig. 6 Drawing with the saved settings

3) Right-click on the upper-left corner of [Extra drawing] to open a pop-up menu. Click [Save] to save the settings of the drawing (Fig. 5).

Loading saved settings and displaying drawing data (Fig. 6):
4) Click [Option] from the top menu and select [Map element].
5) Click [Browse] and select the file saved in step 3 above.
6) Check [Extra].
7) Click [OK].

Automatically loading settings to display drawing data when SATAID restarts:
8) Click [Option] from the top menu, then select [Save settings] and [Save immediately] in the [Option] menu list (Fig. 7).
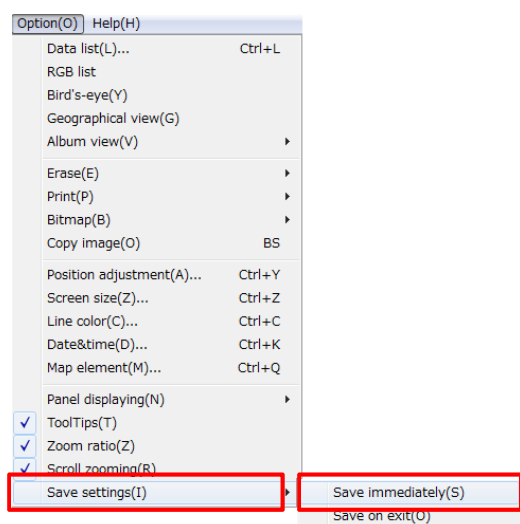


Fig. 7 Loading settings automatically

Thank you for the inquiry. JMA welcomes questions and feedback on HimawariCast, as responses are expected to benefit all users.

(Akiyoshi ANDOU)

## SATAID update

JMA launched the upgraded SATAID Ver. 3.2.0.4 on 6th September 2017. The new version includes fixes for security issues and changes to the interface of the RGB color interpretation function. It is available at http://www.data.jma.go.jp/mscweb/en/himawari89/himawari_cast/himawari_cast.html#software.

The RGB color interpretation display function featured in HimawariCast Newsletter No. 4 has been upgraded since the previous version of SATAID to facilitate the display of RGB color interpretation (Fig. 8).
1) Open the RGB image list window from the Options menu.
2) Check [Color interpr.].
3) Click [Apply].
4) The RGB color window displays interpretation information for the RGB image.

With the new version, the user is no longer required to click the upper-left corner of the window to display a pop-up window.
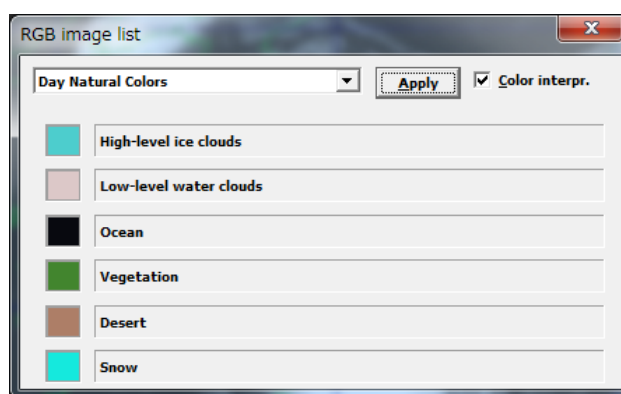
(Akiyoshi ANDOU)



Fig. 8 RGB color interpretation display

## Feedback

JMA welcomes feedback from users on HimawariCast data usage, and particularly invites articles to be posted in this newsletter. Such input will help other users consider new ideas for their services.

The Agency also invites questions on HimawariCast services. These may relate to the functions of the SATAID program, interpretation/analysis of multi-band imagery or other areas of interest. Feel free to send queries to be answered in this newsletter.

All articles and questions are welcomed. Your contributions are greatly appreciated.

Fig. 9 Seminar at SMD (top) and a primary school awareness program (bottom)

## Comments and Inquiries

Comments and inquiries on this newsletter and/or the HimawariCast Web Page are welcomed.

Back numbers of HimawariCast Newsletters:
"Dissemination via communication satellite: the HimawariCast service", MSC/JMA
http://www.data.jma.go.jp/mscweb/en/himawari89/himawari_cast/himawari_cast.html

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