International Civil Aviation Organization

INFORMATION PAPER

EIGHTH MEETING OF THE ASIA/PACIFIC METEOROLOGICAL SERVICES WORKING GROUP (MET/S WG/8)

Bangkok, Thailand, 21 – 23 March 2018

Agenda Item 3: Planning and implementation of meteorological services

EFFORTS IN SUPPORT OF SIGMET COORDINATION BY THE HONG KONG OBSERVATORY

(Presented by Hong Kong, China)

SUMMARY

This paper presents the efforts to extend the SIGMET coordination effort and enhancement of the regional SIGMET coordination web platform developed by the Hong Kong Observatory to better support regional SIGMET coordination.

1. INTRODUCTION

1.1 A Regional Forum on Meteorological Services for Aviation Safety in Southeast Asia, held by the World Meteorological Organization (WMO) in April 2015, adopted the "Jakarta Recommendations on Regional Cooperation for Enhancing Meteorological Services for International Air Navigation by the WMO Member States in Southeast Asia" with the aim at establishing a mechanism for improving the SIGMET service provision in a seamless manner across the borders of the flight information regions (FIR).

1.2 Following the Jakarta Recommendation, three states, Indonesia, Malaysia and Singapore, participated in a pilot SIGMET coordination Project while Japan and Hong Kong, China were invited by WMO to provide the coordination platform. In view of the success and benefits to the aviation community, the Coordination has since transitioned to become full 24/7 operational since 1 August 2017.

1.3 To support the step-by-step integration of SIGMET coordination activities in the region, a trial SIGMET Coordination has been set up among Guangzhou (ZGZU), Hong Kong (VHHH), Hanoi (VVNB) and Hoi Chi Minh (VVTS) and Sanya (ZJSA) FIRs to cover the western and northern part of the South China Sea area since November 2017. Subsequently Vietnam joined the operational SIGMET coordination since 1 January 2018. The operational SIGMET Coordination now covers a total of 6 connected FIRs in the region.

1.4 The Hong Kong Observatory (HKO) is committed to continue to support the SIGMET coordination effort through training and enhancing the SIGMET Coordination web-based platform developed by HKO for coordination and issuance of SIGMET (HKO web platform). A SIGMET coordination training workshop was held in Hong Kong in December 2017 to introduce the HKO web

platform to other MWOs in the region. The workshop was attended by all ASEAN countries with MWOs. The participants also took the opportunity to share their respective practices, including the criteria for SIGMET issuance and issues in SIGMET provision as well as provide their comments on the HKO web platform. New features will also be made available on the HKO web platform to further facilitate the operational coordination among the participating MWO meteorologists and are presented in the following paragraphs.

2. DISCUSSION

2.1 HKO collected user feedback on the functionality of the HKO web platform from user survey and during the SIGMET coordination training workshop. A handful of improvements were made to the web platform in response to the needs raised. Apart from improving the presentation style, performance aiming at enhancing the user experience, some new functionality were also added based on the suggestions by the users:

Convection Nowcast Guidance (Fig.1)

2.2 An algorithm for automatic identification of significant convection area based on Himawari-8 satellite image and global lightning data was developed. The algorithm also tracks the past movement of the significant convection areas shown on consecutive satellite images and provides the forecast position 4 hours ahead based on the motion vectors analysed. Both the actual and the associated forecast areas are respectively highlighted by polygon with solid lines and dotted lines for ease of reference. The nowcast will be updated every 10 minutes when new satellite image is available. This real time nowcast information could provide useful guidance for aviation forecasters to issue TS SIGMET more effectively and efficiently.

Upper air wind forecast (Fig.2)

2.3 It is learnt from the user feedback that some users prefer to have the upper air wind field shown using wind barb other than streamlines. A new zoomed level dependent wind barb is now available on the web platform. The more the user zoom-in to an area on the platform, the more wind barb for the area will show up, showing features of smaller scale. Currently, only wind barbs at 500hPa and 700hPa are available. Wind barbs for more vertical levels will be available shortly.

WV SIGMET Coordination (Fig.3 and Fig.4)

2.4 The HKO SIGMET Coordination platform has also been enhanced for the issuance of WV SIGMET. The actual and forecast positions extracted from the VA Advisory issued by VAAC are denoted as polygons on the platform. Aviation forecasters can assess the timing and location of the VA entering from one FIR to another neighbouring FIR so that they could issue harmonized VA SIGMET separately.

2.5 The new functions are now available for trial and would be launched for operation after consulting platform users. More new features such as advanced grouping feature to allow different neighbouring MWOs to initiate coordination with selected neigbours to support the possible further extension of the SIGMET coordination effort to more MWOs as well as those based on the users feedback are on the pipe line. Interested MWOs can also approach HKO for assess account.

3. ACTION BY THE MEETING

3.1 The meeting is invited to note the information contained in this paper.

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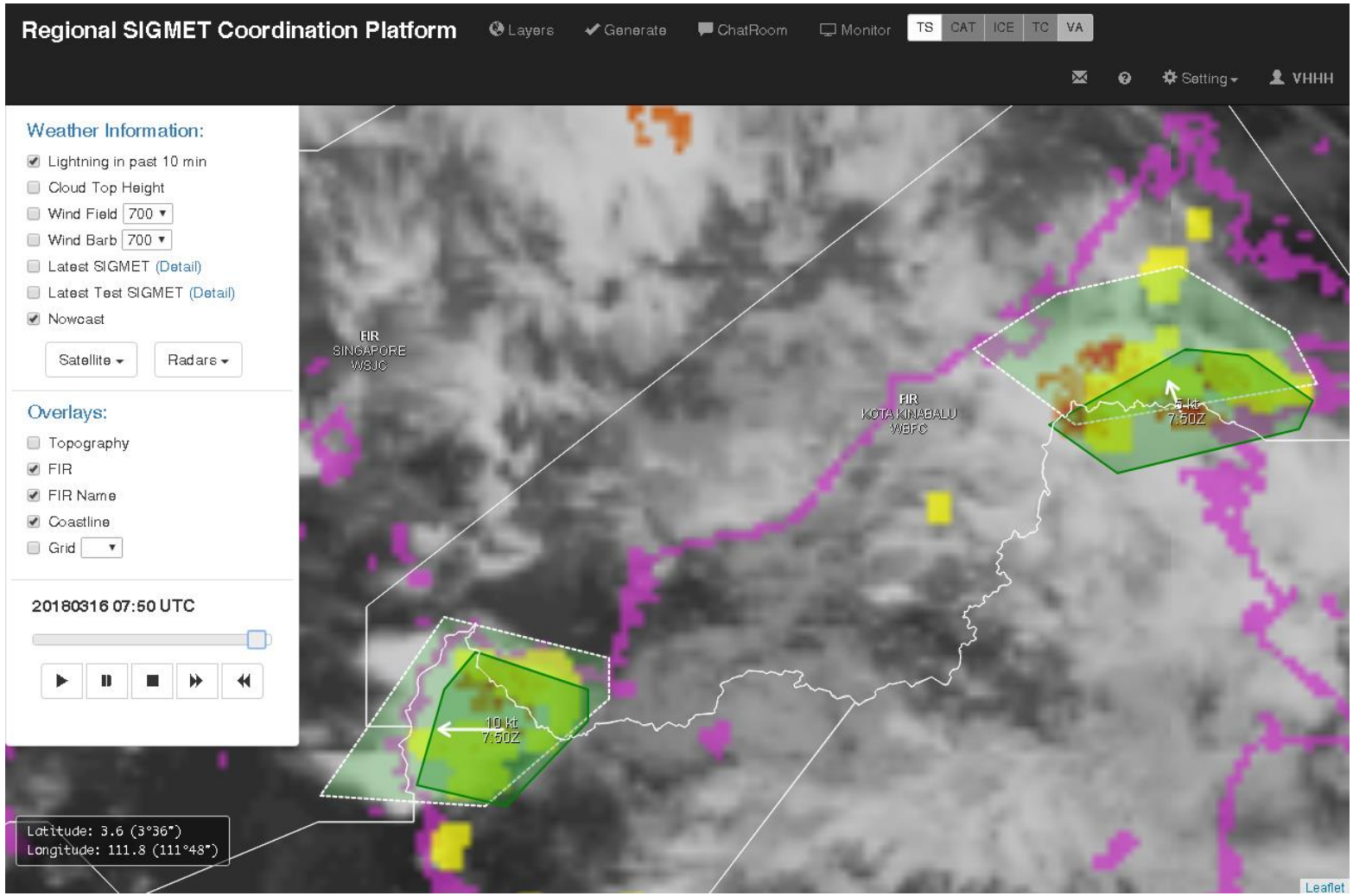

Fig. 1 Convection nowcasting available on the HKO web platform. The polygon with solid lines are the present connective areas identified by the algorithm automatically while the polygons with dotted lines are the respective forecast positions.

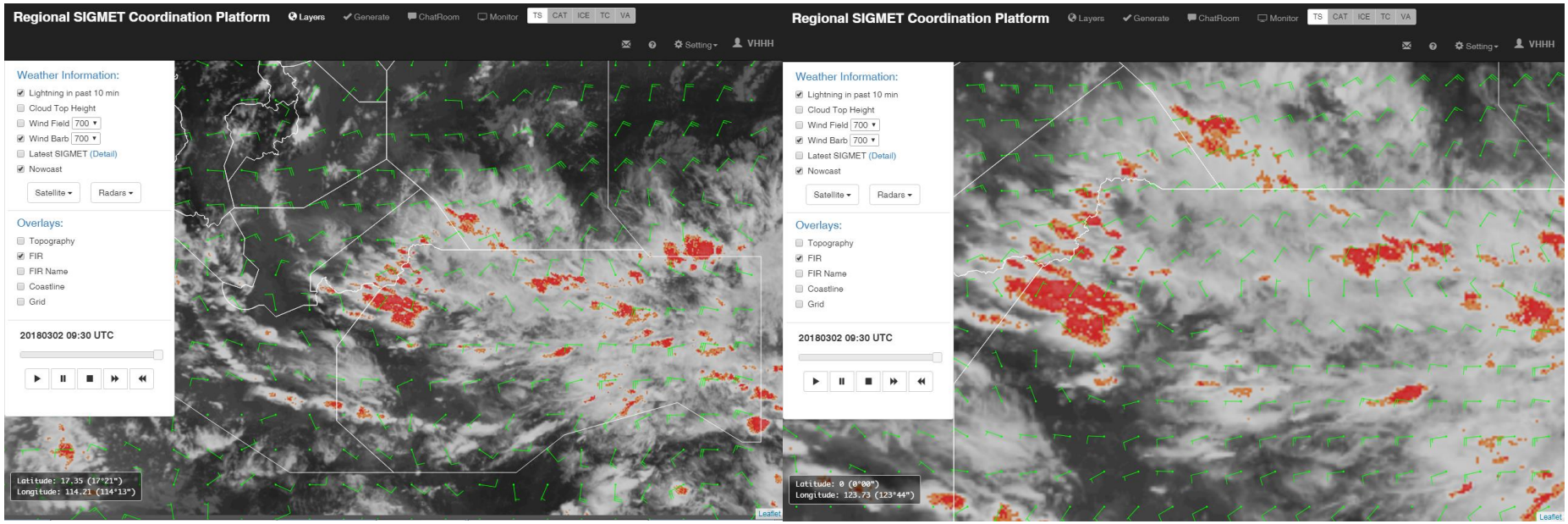

Fig. 2 Wind barb showing upper air wind at different zoom levels.
Features of smaller scale can be shown by zoom-in to a particular area (right).

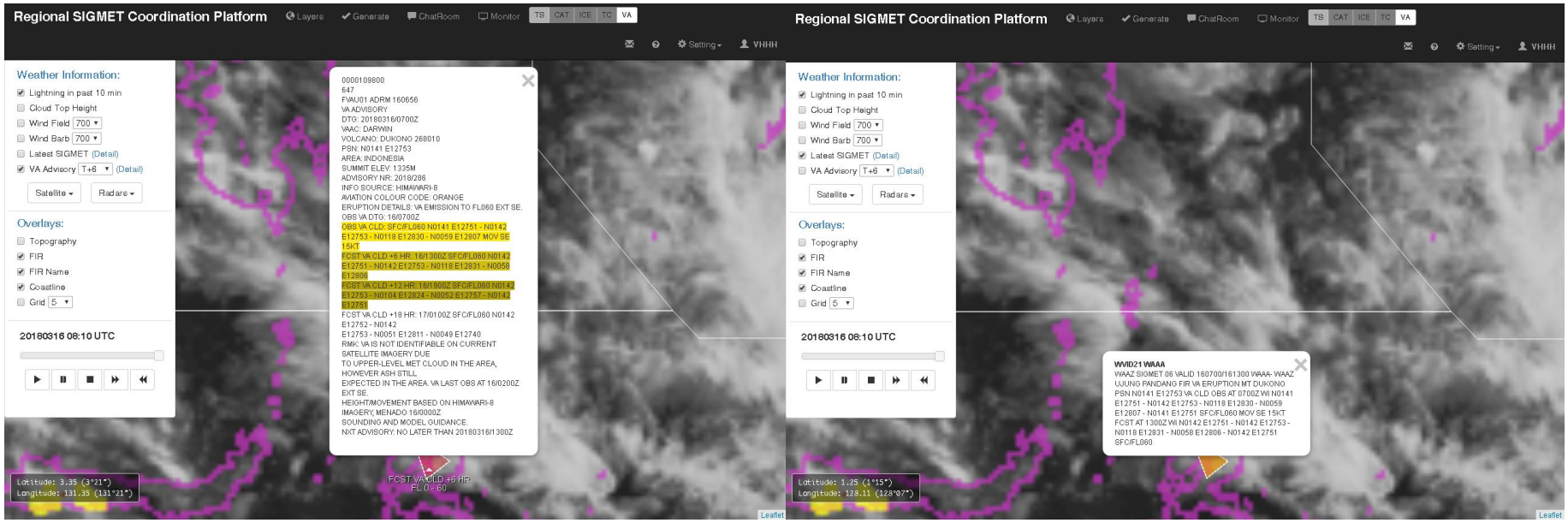

Fig. 3 VA advisory and latest WV SIGMET displayed on the platform

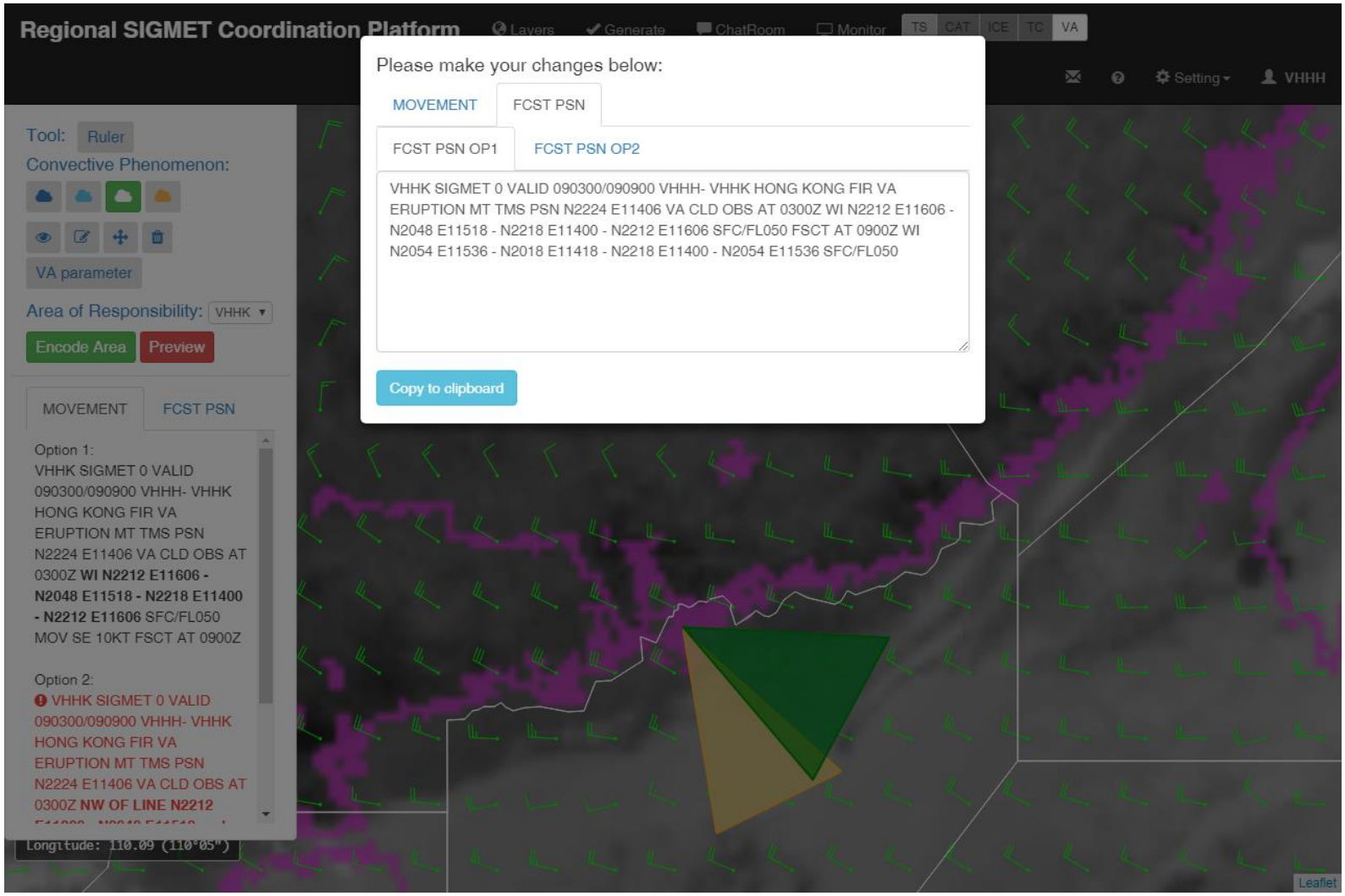

Fig. 4 WV SIGMET created on the platform