

*International Civil Aviation Organization*

**FOURTEENTH MEETING OF THE  
COMMUNICATIONS/NAVIGATION/SURVEILLANCE  
AND METEOROLOGY SUB-GROUP OF APANPIRG  
(CNS/MET SG/14)**



Jakarta, Indonesia, 19 – 22 July 2010

**Agenda Item 11: Implementation of SIGMET and warnings  
(3) Review METWSG SIGMET advisory**

**WEB-BASED DISPLAY OF GLOBAL SIGMETS AND ADVISORIES**

(Presented by Hong Kong, China)

**SUMMARY**

This paper presents information on the extension of the web-based SIGMET monitoring system for ASIA/PAC region developed by Hong Kong, China to have global coverage.

This paper relates to:

**Strategic Objectives:**

- A. Safety – Enhance global civil aviation safety
- D. Efficiency – Enhance the efficiency of aviation operations

**Global Plan Initiatives:**

- GPI-18 Aeronautical Information
- GPI-19 Meteorological Systems

**1. Introduction**

1.1 Following the endorsement of APANPIRG/17 on a proposal by CNS/MET SG/10 meeting, Hong Kong, China developed a website providing real-time information on the valid SIGMETs and Advisories in the ASIA/PAC Region for monitoring purpose. Singapore ROBEX centre also provided assistance to route all SIGMET information of ASIA/PAC region via AFTN to Hong Kong, China (VHHHYMYX) such that the required information could be received from both WAFS and AFTN for display on the website. Access to the website (<http://www.sigmetmon.weather.gov.hk/>) was made available in 2007 to all RODBs, ROBEX centres, MWOs and ICAO Regional Office as a graphical monitoring tool of SIGMETs in the ASIA/PAC Region (Figure 1).

1.2 In May 2009, the second meeting of the ICAO Meteorological Warnings Study Group (METWSG/2) endorsed a feasibility study on the trial issuance of SIGMET advisory information (thunderstorms, severe turbulence, severe icing and severe mountain wave) from selected regional centre(s). The objective is to provide assistance to Meteorological Watch Offices (MWOs) on the issuance of SIGMETs, similar to that provided by the Volcanic Ash Advisory Centres (VAACs) and Tropical Cyclone Advisory Centres (TCACs). In particular, an ad hoc group was established under the METWSG to oversee the planning of the feasibility study.

1.3 The work plan of the METWSG ad hoc group includes, *inter alia*, the availability of a SIGMET monitoring scheme to easily provide statistics on the impact of the advisory information. Noting the successful implementation of the SIGMET monitoring website for the ASIA/PAC Region, METWSG/2 considered that the SIGMET monitoring scheme for the feasibility study could make use of the ASIA/PAC web-based service, which could be expanded if necessary to cover other regions. As the latest information from the ad hoc group suggests that the trial regional SIGMET advisories are planned to be available in the first or second quarter of 2011, and the regions to be involved in the trial would likely include ASIA/PAC, AFI and possibly CARSAM, Hong Kong, China is planning to extend the ASIA/PAC SIGMET monitoring website to have global coverage and make it available by the first or second quarter of 2011.

1.4 This paper presents information on the web-based global SIGMET and Advisory monitoring system being developed by Hong Kong, China.

## 2. Progress

2.1 With the assistance of ICAO, geographical coordinates of global FIR boundaries has been obtained to facilitate development of the global base map for the global SIGMET and Advisory monitoring website. As compared with the ASIA/PAC SIGMET monitoring website (Figure 1), the global SIGMET and Advisory website (Figure 2) features the following enhancements or modifications:

(a) **Use of Geographical Information System (GIS) application:** this enables the display of all information “at-a-glance” with global view and easy “zoom-in” capability for regional information of SIGMETs and Advisories.

(b) **Indication of SIGMET issuance:** instead of highlighting the MWOs which have issued the SIGMETs in the ASIA/PAC website (Figure 1), the FIR with SIGMET(s) in force will be shaded to highlight the valid SIGMETs in the global website (Figure 3). This feature is to cater for the situation where certain MWOs could issue SIGMETs for more than one FIRs, some of which may not be in the immediate vicinity of the MWO concerned (e.g. MWO at Kunming, China has started issuing SIGMETs for Phnom Penh FIR of Cambodia). If multiple types of SIGMET are being issued for the same FIR at the same time, the shaded region will flash.

(c) **Indication of advisory issuance:** similar to the ASIA/PAC website, if advisories are issued by a certain advisory centre, an icon representing the type of advisory will be shown at the advisory centre location. If the advisory centre issues multiple advisory messages, the icon will flash. An enhanced feature for the global website is that symbols of tropical cyclone and volcano will also be placed at the actual location of the tropical cyclone/volcano concerned based on the advisory information. This enhancement will facilitate identification of those FIRs with SIGMETs issued for the TC/VA phenomena covered by advisories, and those FIRs without SIGMETs issued for the TC/VA phenomena covered by advisories.

(d) **Display of SIGMET/advisory message:** when the cursor is placed over the shaded FIRs where SIGMETs are in force or over the advisory centres where advisories are in force, the corresponding SIGMET and advisory message(s) will be shown respectively.

(e) **Statistics:** required statistics on SIGMET issuance for the FIRs concerned could be compiled for evaluation by the METWSG ad hoc group during the regional SIGMET advisory trial.

2.3 Comments will be sought from METWSG on the display of the global SIGMET and Advisory monitoring system. Subject to the confirmation of SIGMET Advisory format (text and graphics for thunderstorms, severe turbulence, severe icing and severe mountain wave), further enhancement could be considered to decode the advisory message and overlay the location or area of impact on the webpage.

### **3. Dissemination of global SIGMET information**

3.1 Hong Kong, China currently receives SIGMETs and advisories through SADIS, ISCS and AFTN. To facilitate the reception of all SIGMETs and advisories to support the implementation of the global SIGMET and advisory monitoring system, it is important that all issued SIGMETs and advisories can be received in Hong Kong, China. This could be achieved if all issued SIGMETs and advisories are received by the two WAFCs and disseminated through the SADIS and ISCS broadcasts. Alternatively, as in the implementation of the ASIA/PAC SIGMET monitoring website, assistance from other ROBEX centres will be required such that Hong Kong, China could obtain global SIGMETs and advisories through AFTN.

3.2 Upon checking the SADIS and ISCS User Guides, it is however found out that a number of FIRs are missing in the relevant tables. They are listed in Table 1 of this paper. While this may just be a QMS issue of documentation updating for the WAFCs, it will be prudent to ensure that the issued SIGMETs for these FIRs are indeed available on the SADIS and ISCS broadcasts.

3.3 To facilitate implementation of the global SIGMET and advisory monitoring system and to provide comprehensive information for RODBs, ROBEX centres, MWOs and ICAO Regional Offices in monitoring issuance of SIGMETs, it is important that the SADIS and ISCS User Guides should be updated and that all issued SIGMET bulletins are indeed received by two WAFCs and disseminated through the SADIS and ISCS broadcasts. It is suggested that the latter may be achieved, by involving the WAFCs in the regular regional SIGMET tests so that the status of reception and dissemination of issued SIGMETs of those MWOs participating in the tests could be ascertained.

### **4. Action required by the Meeting**

4.1 The meeting is invited to note the information provided in this paper. Following discussions on the issues highlighted in Section 3 above, the meeting may wish to formulate the following draft Conclusion:

#### **Draft Conclusion 14/xx – Update of SADIS and ISCS User Guide**

That,

- a) the WAFc Provider States update the SADIS and ISCS User Guides to reflect the global coverage of SIGMET bulletins; and
- b) the WAFc Provider States confirm the reception and dissemination of issued SIGMET bulletins on the SADIS and ISCS broadcasts.

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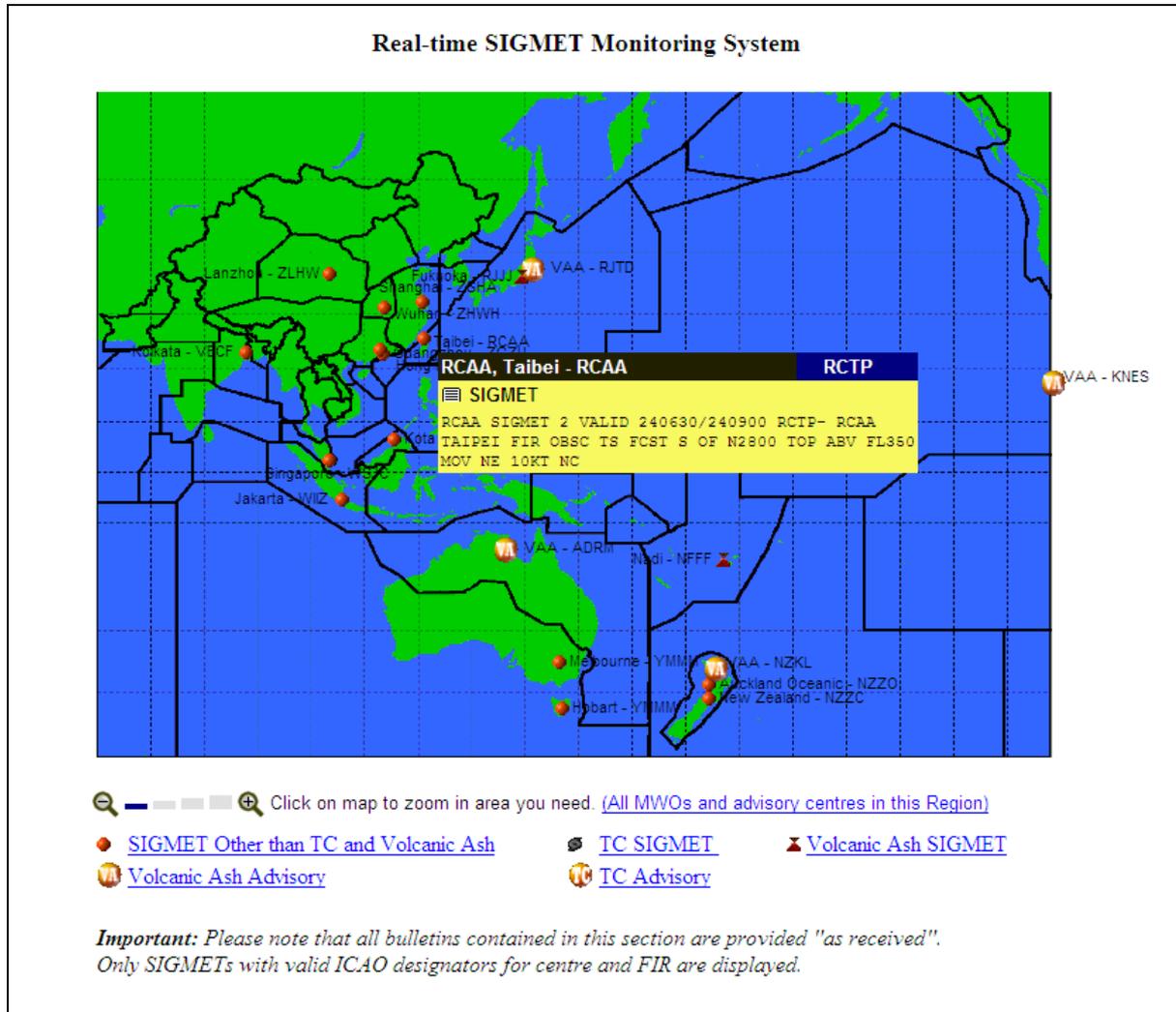


Fig.1 Existing real-time SIGMET Monitoring System for ASIA/PAC Region.

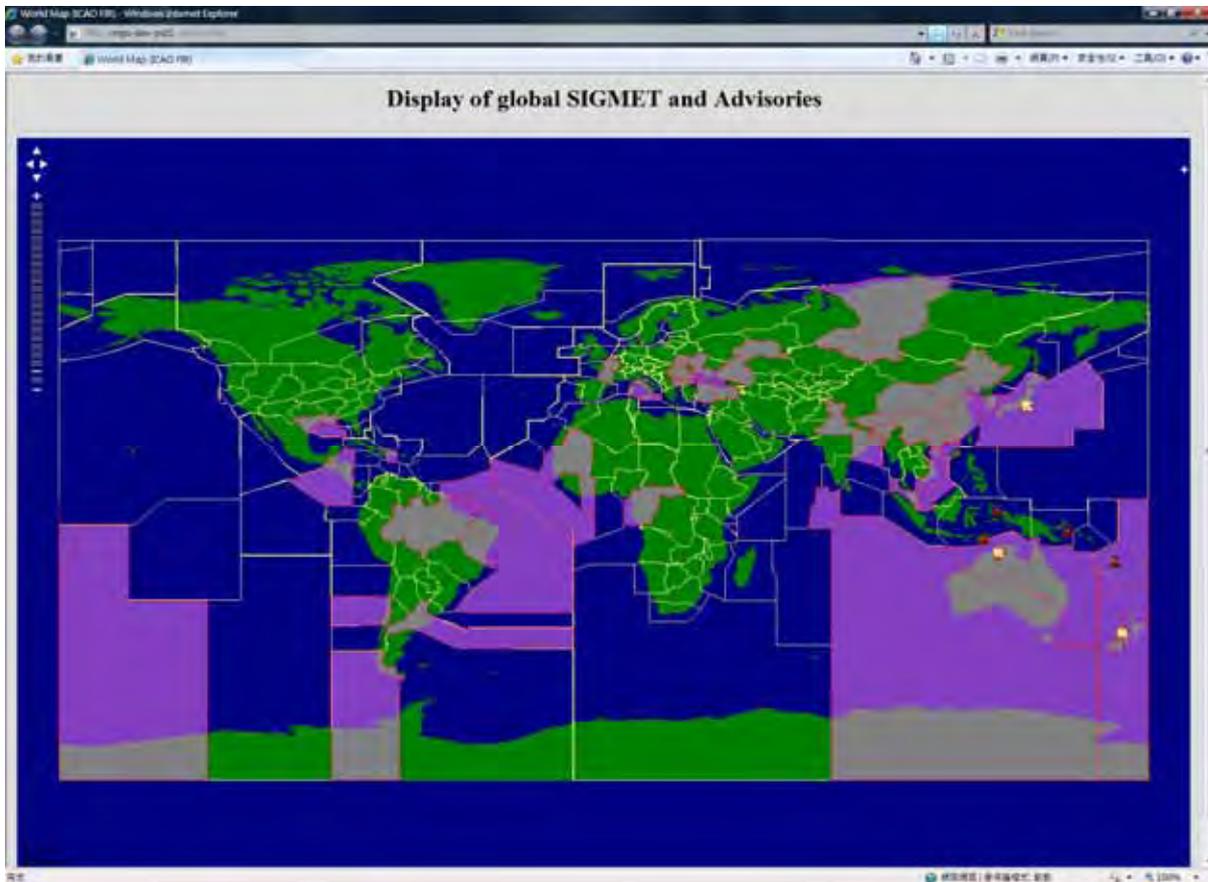


Fig.2 Real-time global display of SIGMETs and Advisories

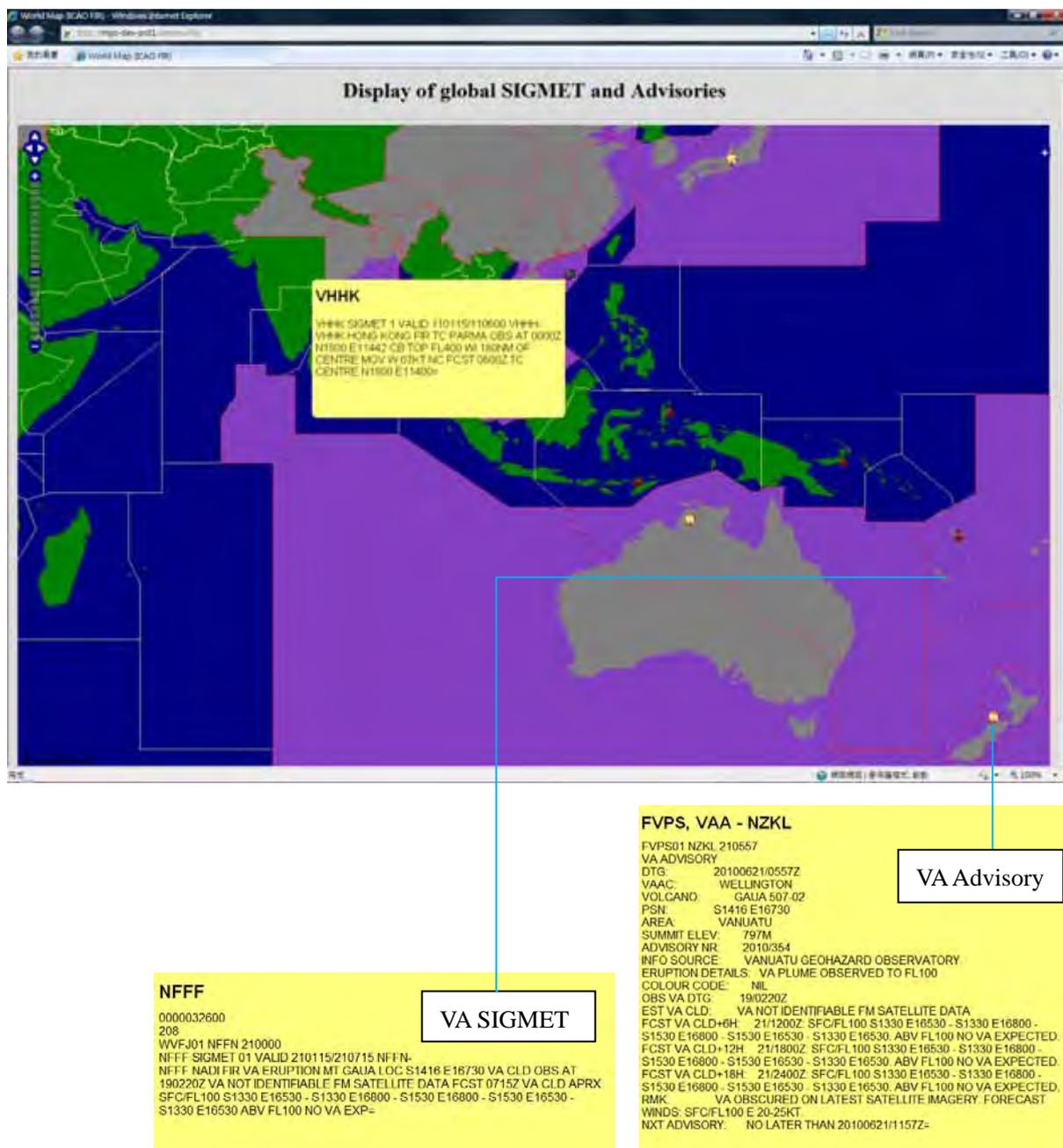


Fig.3 FIRs with SIGMET(s) in force will be shaded, textual SIGMET/advisory bulletins will be shown when the cursor is placed over the shaded FIR or advisory centre respectively.

-  - Volcanic Ash Advisory Centre
-  - Tropical Cyclone Advisory Centre
-  - location of volcano (based on VA advisory)
-  - location of TC (based on TC advisory)

**Table 1:** FIRs not listed in SADIS/ISCS User Guide for SIGMET bulletins

FIRs not listed in SADIS User Guide	FIRs not listed in ISCS User Guide
KZAB, KZAU, KZBW, KZDC, KZDV, KZFW, KZID, KZJX, KZKC, KZLA, KZLC, KZMP, KZWY, KZAK, KZOB, KZSE, KZTL, CZQM, CZUL, CZVR, CZWG, CZYZ, CZEG, LAAA, LEBL, ORBB, OJAC, OSDI, OKAC, OIIX, OMAE, OOMM, OAKX, GVSC, FIMM, HCSM, HAAA, HKNA, HUEC, FBGR, FVHF, FYWH, FQBE, FNAN, FLFI, FWLL, HRYR, HTDC, DGAC, DNKK, DAAA, FTTT, HLLL, HHAA, GLRB, HBBA, MYNA, MMFO, SAVF, SACF, SKED, SYGC, SMPM, SKEC, SVZM, TNCF, MKJK, MTEG, MDCS, MMFR, VLVT, AGGG, AYPY, ANAU, WAAZ, VRMF, VDPP, RPHI, RCTP, VNSM, RKRR, ZKKP, ZMUB, PZAN, KZME, VVVV, OPLR, OYCS, LLTA, UATE, UATT, UACC, LUKK, UTAT, UTDD, UAOO, UMMM, UTNR, UAFO, UTSD, UAII, EETN, UGGG, UTAK, UTAV, USTR, UGEE	KZAB, KZAU, KZBW, KZDC, KZDV, KZFW, KZID, KZJX, KZKC, KZLA, KZLC, KZMP, KZWY, KZAK, KZOB, KZSE, KZTL, CZQM, CZUL, CZVR, CZWG, CZYZ, CZEG, LAAA, LEBL, ORBB, OJAC, OSDI, OKAC, OIIX, OMAE, OOMM, OAKX, GVSC, FIMM, FAJO, HCSM, HAAA, HKNA, HUEC, FBGR, FVHF, FYWH, FQBE, FNAN, FLFI, FWLL, HRYR, HTDC, DGAC, DNKK, DAAA, HLLL, HHAA, GLRB, HBBA, MHTG, MYNA, MMFO, SAVF, SUEO, SAMF, SACF, SLLF, SKED, SYGC, SMPM, SKEC, SVZM, TNCF, MKJK, MTEG, MDCS, MMFR, VLVT, AGGG, AYPY, ANAU, WAAZ, VRMF, WMFC, VDPP, VOMF, VTBB, VNSM, ZKKP, ZMUB, PZAN, KZME, VVVV, OPLR, VIDF, OYCS, VGFR, EDGG, FACT, LLTA, UATE, UBBB, LUKK, UTAT, UTDD, UNKL, UAOO, UMMM, UTNR, UAFO, UTSD, UAII, EETN, UGGG, UTAK, UTAV, USTR, UGEE