The Importance of SIGMET provision

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The 7 W's

- WHY: Purpose of SIGMET as part of a service provision
- WHO: What are the roles of different units and service providers
- For WHOM: In-flight crew, pre-take-off (AOC), ATM
- WHEN: Know your criteria, don't wait for a serious situation to manifest itself

And 3 more..

- WHERE: to provide real added value over products given for flight planning, give best estimate of danger area boundaries
- WHICH phenomena: defined by Annex 3!
- HOW: Know your information sources (models, remote/in situ observations, PIREP/AMDAR)

WHY

- World Area Forecast System products provide planning base – but 24 hours ahead
- MWO to monitor developments, detect deviation from forecast (location, intensity, timing)
- Use of real-time data
- Access to national and regional data

WHO

- For Tropical Cyclones and Volcanic Ash:
  - Advisories provided based on NWP and Satellite information
- Nationally: The Meteorological Watch Office on a 24/7 basis

For WHOM

- Modern aircraft receive uplinked information (ACARS, Voice)
- AOC flight following tasks
- ATM copied for common awareness
- Regional exchange and coordination
- Common situational awareness created by authoritative source (SIGMET)

WHERE

- MWO to use national data (WXR, AWS, Lightning detection)
- PIREPS, contact to ATM
- Knowledge of regional/national climatology

Role of SIGMET

- One, but not only factor in flight planning
- May influence route selection
- SEV or Extreme phenomena may lead to cancellation /delaying/re-routing of flight
- Observed phenomena have higher weight than Forecast
- Large responsibility for safety of crew and passengers
- In-flight uplinking /VHF communications for unexpected phenomena

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Cooperation with ATM

- PIREPS essential for detection of onset, cessation and intensitiy of phenomena
- « Early Warning » of avoidance by pilots allows more efficient use of air space , assigning ATC staff to affected sectors
- Overwarning may seriously affect viability of operations, credibility of service
- Monitoring vital

Problem of Harmonization

- SIGMET-worthy phenomena may cover several FIR's
- Information independently provided by MWO's
- Credibility / Reliability at stake when one and the same phenomenon is interpreted very differently by neighbouring MWO's
- Coordination of content, timing, area and levels affected needed (similar to ATM coordination)

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Harmonization 2

- Comparability of staff training, infrastructure and techniques vital
- Asian Aviation Meteorology Web site an excellent start
- First step towards a « common situational awareness » in an entire region
- MWO staff need high level of qualification (WMO 258, Class 1)and competence in order to ensure full comprehension of sophisticated tools (Under revision, to be published soon)

Cooperation

- Congress XV supported the forming of regional and sub-regional aviation met groups with the RA's
- Such groups to cooperate closely with ICAO PIRG's
- Groups to consider service delivery in a changing air space structure
- SIGMET issuance first « test » of improved cooperation

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Changes in Air Traffic Management

- Several Regions are planning « integrated air space concepts » going beyond existing national borders
- Meteorological service provision, in particular SIGMET issuance, may have to adapt to changed structures
- Required infrastructure (WXR networks, Satellite data processing, high-resolution modelling, automation of warnings) may exceed capacity of smaller NMS's

Preparing for code migration and system-wide information management

- Current free-text SIGMETs extremely difficult to parse by automated flight planning systems
- No error-checking capability
- New ATM concepts being developed look for web-based, table driven code forms in all aviation information exchange
- New Expert Teams in WMO in cooperation with ICAO to assess, develop appropriate standards

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System-wide information

- All information available to all stakeholders
- Common data formats for all types of aeronautical information
- Higher Traffic density requires faster, more automated information provision
- Regional cooperation absolutely necessary to face this technological challenge

Cooperation or competition?

- New ATM systems and Airlines will expect high-quality, timely, coherent and reliable warnings for larger areas
- Only close coordination and cooperation can ensure continued involvement of all NMS's in aeronautical meteorological service provision
- « Economy of scale » in capacity building, infrastructure investment
- Larger airspace « blocks » will provide sufficient revenue in Cost Recovery for sustainable development

Common Requirements

- Harmonized hard-and software components for economies of scale (e.g. WXR, lightning detection, modelling)
- Joint development of Quality Management Systems under ISO 9001-2008
- Cooperation in development, training and capacity building (common, larger MWO's would allow for centralized training, staff rotation, exposure to up-to-date systems)

Co-operation with RSMC

- Information from VAAC's and TCAC's
- Reliable translation into aviation –oriented products
- Shared training with VA, TC experts
- Better preparedness for natural disasters

(hardening of infastructure, early risk identification, coordination of rescue and reconstruction, both relying on aviation)