AVIATION QUALITY MANAGEMENT SYSTEM

Aviation QMS Newsletter Aims to Get the Word Out

By Michael Graf, Aviation Task Team Chair for RA IV

Over the course of the next year all States should have a Quality Management System (QMS) in place. The World Meteorological Organization (WMO) Regional Association (RA) IV Aviation Task Team will help States move forward on QMS by sharing other States experiences and successes via this newsletter. But we need your help.

For us to publish this newsletter every 2 months, we need articles and ideas from you, the people doing this work. We need your successes, challenges, ideas, models, templates, etc., for QMS.

In this first issue you'll see an article from Jamaica, discussing its QMS process and what they need to do to move forward. You will also find information on verification and climatology.

Future articles likely will delve further into these ideas that could lessen a State's workload. The last article is about the GTS Internet File Service, a replacement to the International Satellite Communication System.

So how can you contribute? Please send your comments, ideas and, most important, your articles in a Microsoft Word Document to Mike Graf at the email address below. U.S. National Weather Service (NWS) Headquarters staff in Silver Spring, MD, will handle layout and editing.

Before publication, contributors will have a chance to review it and request changes.

Through venues such as this, we can encourage States to move forward in QMS.

If you work in a State that already has a QMS in place, please share your successes and lessons learned for implementing a successful QMS.

Thank you for your time. We hope this newsletter can be of assistance in your program. Publication dates in 2012: January, March, May, July, September. To contribute your ideas and or comments, please email: michael.graf@noaa.gov

Improving TAF Construction and Accuracy

Kathy-Ann L. Caesar, Meteorologist

To help the Caribbean Meteorological Organization (CMO) member States fulfill WMO/ICAO recommendations for a QMS by 2012, the Caribbean Institute for Meteorology and Hydrology (CIMH) is working on programs to improve the construction and accuracy of Terminal Aerodrome Forecasts (TAFs). These programs include the CIMH TAF verification (CIMH_TAFv) program and a TAF climatology program.

CIMH_TAFv

These two programs were developed by the NWS and made available to CIMH for use by regional forecast offices. The CIMH_TAFv is a package of programs that includes the original NWS Aviation Verify (AVN) program (**Figure 1**).

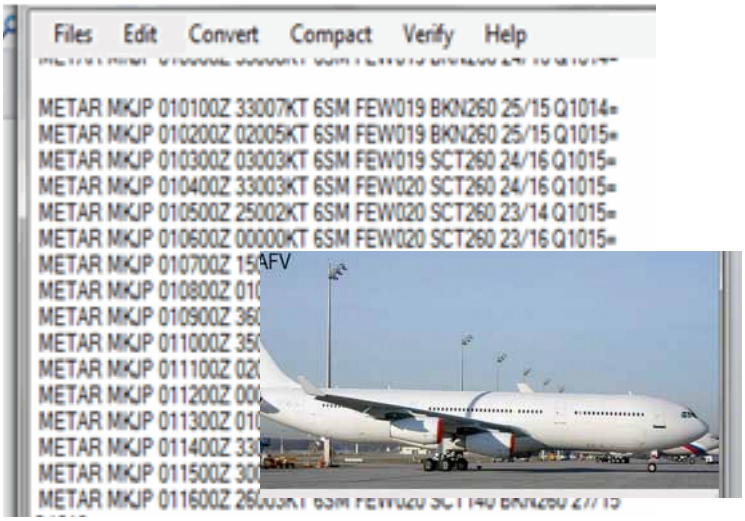

Figure 1: *CIMH_TAFv Main Screen and results of the METAR Covert*

This program evaluates TAFs with respect to the observed conditions available from the hourly Meteorological Actual Reports (METAR). CIMH_TAFv is a Microsoft Excel based program, thus it is easily integrated into a Windows operating system. The additional programs are simple ones, needed to extract and convert the data to a format required for the AVN Verify program. As a complement to the program, a TAF writing program, TAF Helper© was developed by Keithley Meade of the Antigua Meteorological Service.

Benefits of CIMH_TAFv

Early testing in 2007 of the program using data from eight of the nine regional forecast offices, had immediate results. The data included METARs and TAFs from June through October 2007.

One of the stations exhibited extremely poor verification statistics, which was reported directly to the forecast office. Acting on those results, the office director worked with his forecasters to ensure they better understood TAF regulations and could thus make better forecasts. In one year, the forecast office results significantly improved from a percentage correct (%C) in the 20s to percentages near the 40s and 50s (**Figure 2**).

The early testing also revealed there were numerous TAF and METAR format errors in the disseminated reports. To counter this, the TAF Helper program was introduced as part of the package.

Work on the CIMH_TAFv program was completed in 2009 and beta testing in mid- 2010. The program was released to the regional forecast offices in November 2010. To access the CIMH_TAFv program, contact Kathy-Ann Caesar or Dr. David Farrell, CIMH Principal.

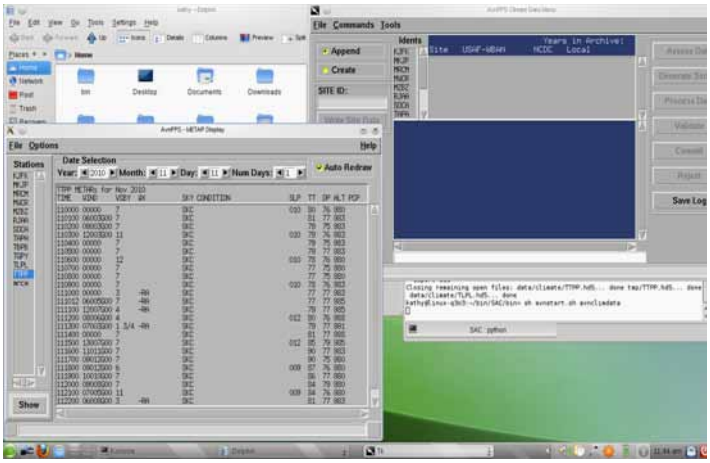

Figure 3: *Screen shot of the TAF Climatology program: avnclimdata and avnclimate windows*

TAF Climatology

Statistically, *Persistence* and *Climatology* forecasts perform best. This performance record is one of the advantages to using climate data to write a terminal forecast.

Most forecast offices can give the aeronautical meteorologist Conditional Climatology Tables (CCTs) indicating weather trends over several hours. The CCTs provide the forecaster with a statistical probability of an event.

The TAF climatology program assimilates 30 years of METAR data into an observational climatological database, simulating the CCTs, and allows graphical manipulation of data. In this form, the forecaster can determine likely changes in flight conditions under different circumstances.

For example, statistics can show the forecaster the probability of certain ceiling/visibility ranges under specific wind directions.

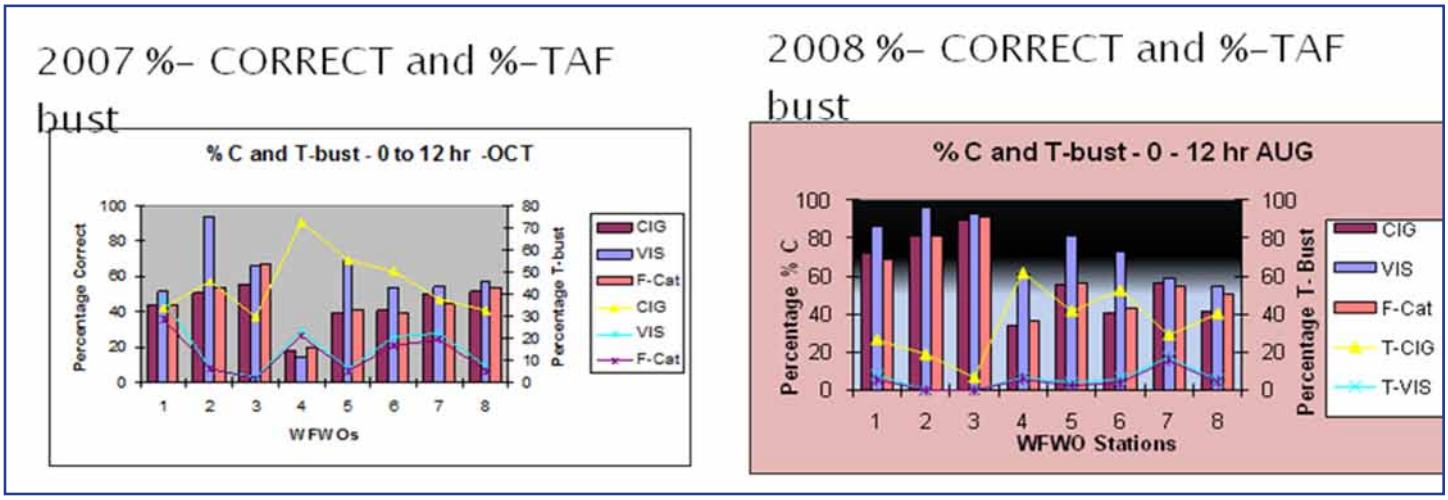

Figure 2: *Percentage Correct results of TAF verification for the Caribbean Forecast Offices, October 2007 and August 2008*

Meteorological Service Jamaica Report: Progress Toward QMS

Kareen Gourzong, Meteorological Service, Jamaica

Following a workshop in Barbados, May 18-24, 2011, Meteorological Service, Jamaica, started preparations in earnest to implement a Quality Management System (QMS) for aeronautical meteorology.

On June 9, 2011, the QMS team presented the Quality Manager, acting Weather Branch Head, core aeronautical meteorology staff, and aeronautical forecasting staff the following:

- Overview of QMS
- Basics of International Organization for Standardization
- Way forward
- Status of QMS
- Practical applications of eight QMS principles
- Verification processes

Following the meeting, the Quality Manager drafted a timeline and milestones for QMS through November 2012. The Quality Manager also detailed an implementation plan with due dates of processes and the persons responsible for these processes.

The first Management Review meeting was held on June 15 with the Weather Branch Head and Director, where the following items were discussed:

- Status of QMS
- Requirements
- QMS Schedule and Implementation Plan
- Goals to be completed by next Management Review
- Persons responsible for goals and their deadlines
- Funding resources
- Management perspective
- Results of previously QMS meeting

The Management Review identified who in top management would work on the service's quality policy and objectives.

Top management also agreed to staff the Quality Core Team, a group of three responsible for implementing QMS and ensuring it is ready for certification by November 2012.

At the end of September 2011, the Quality Policy and Objectives were finalized. Core Team members were identified but were not able to meet due to human resource constraints and other job duties.

While the top management team prepared the quality policy and objectives, the quality manager conducted a Gap Analysis. The Gap Analysis took a point-by-point approach, looking at each ISO 9001:2008 requirement, then detailing if a document or other evidence was present to support each requirement and finally, identifying the percentage of compliancy and actions required to meet 100% compliancy.

Once complete, the Gap Analysis, Implementation Timeline and Milestones Chart, and Implementation Plan were forwarded to Heikki Juntti of the Finland Meteorological Institute for review.

The Customer Focus aspect of the Implementation Plan has not been going as smoothly. Under this heading, the following were highlighted as objectives:

- Identify customers and plan meetings
- Engage customers and define their requirements
- Develop customer communication process
- Communicate process to customers

A team is working on points one and two but for most customers, especially airline operators, it has been difficult to maintain a line of communication. Since many managers are overseas, communication has been mostly via email with occasional telephone outreach; however, the time in between contact still is excessive.

Competency Assessment Plan

The Workshop on Competency Assessment of Aeronautical Meteorological Personnel, held in Barbados July 18-22, 2011, attendees wrote a draft Competency Assessment Plan for the Meteorological Service, Jamaica.

On August 18, 2011, a very productive meeting was held concerning this new WMO/ICAO Competency Assessment, which will be used by all meteorological offices. Attendees were given an opportunity to provide recommendations on the Assessment Plan content and how to conduct the assessment. Discussions included how to achieve fairness and how best to assess each competency.

In August 2011, Jamaican Met Service staff began documenting the Work Instructions and the Quality

Manual. By the end of September, the staff had completed the Quality Policy and Quality Objectives and defined processes. To date, the Work Instructions are well underway but the Quality Manual is stalled; however, staff clarity on the development of a Quality Manual was gained from a 1-day workshop held locally by the Bureau of Standards Jamaica.

The workshop discussed documentation for QMS in a general sense, where a distinction was made between documenting Procedures versus documenting Work Instructions. With this new understanding, preparation of the Manual can now proceed at full speed.

For the remainder of the year, these are the major activities on the Implementation Plan:

- Finalize Work Instructions, Quality Manual, Competency Assessment Plan, Corrective Action Form
- Complete Management Review #2
- Train staff on QMS issues
- Celebrate World Quality Day

Note on Human Resources

Initially, three staff members, including the Quality Manager, were to work on implementing QMS; however, to date, core team members had not had time to work on QMS implementation due to conflicting work responsibilities.

The Quality Manager has done most of the implementation background work. As a result, some activities under the Implementation Plan are taking longer than scheduled. Starting in October, other team members joined the effort by attending a local workshop on Conducting Internal Audits.

The NWS GTS Internet File Service

All ISCS/**World Area Forecast System** (WAFS) users are encouraged to register for access to the existing WAFS Internet File Service (WIFS).

To support the member States of RA-IV as well as other users, ISCS is initiating a new service to transmit meteorological data to the Washington Regional Tele-Communications Hub (RTH). This service will allow national and regional centers to use Secure Sockets Layer (SSL) Virtual Private Network (VPN) technology to securely transmit RA-IV files to the RTH using accessible File Transfer Protocol (FTP).

Transition to the new service will start January 2012, with completion scheduled for March 31, 2012. All existing NOAAnet service used for ISCS FTP will end after the successful transition of the member States to the SSL VPN service.

Member States may continue to use the RTH-Washington email data input system as a backup service.

NWS is working on alternative communication methods to replace the RA-IV Regional Meteorological Telecommunications Network (RMTN) portion of the ISCS broadcast. The new product will be available primarily through an NWS GTS Internet File Service (GIFS).

Backup for NWS GIFS

NWS is investigating the use of the existing GEONET Cast-Americas (GNC-A) satellite broadcast service. GNC-A will operate as an alternate to GIFS for RA-IV RMTN users who want to obtain GTS data products.

If NWS implements this technology, end users interested in receiving the GNC-A broadcast will need to purchase receiver equipment and software for their site. A list of possible vendors for satellite equipment and installation will be provided in the future.

The outcome of the NWS GNC-A investigation and the future implementation of this service is uncertain. Updates will be posted on the ISCS Website.

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