Operational Bridging 2012 Demonstration

Background

The Collaborative Decision Making (CDM) Weather Evaluation Team (WET) is partnering with FAA Traffic Managers, Airline Operations Centers, and NWS the summer of 2012 to demonstrate, and gain feedback on is "Operational Bridging" (OB) concepts.

OB combines the decision support that CWSU Meteorologists already provide locally, with event-driven weather collaboration. OB, basically scales this TFM decision support to the national level, while reconciling differences between multiple forecast solutions, and facilitating the transition of forecasts from long-range/probabilistic to near-term/deterministic solutions. The FAA-Industry Collaborative Decision Making philosophy is centered on the idea of sharing information, and making decisions with input from all stakeholders. CCFP is a perfect example of this concept. In the spirit of CDM, there is a need to keep the OB collaboration open and available to all participants. Thus, a new product is introduced with the Aviation Weather Statement, (AWS). AWS is based loosely on the SPC Mesoscale Discussion; with a basic graphic and brief text. The AWS is seen as the output from the event driven meteorological collaboration which is the backbone of Operational Bridging. Details on the AWS are found below.

The WET's concept envisions CCFP evolving from the current scheduled collaboration with precise forecast valid times, to an event-driven collaboration with lead times relevant to TFM decision making, i.e. Operational Bridging. The 2012 demonstration is to test the validity of these concepts, as well as investigate the technical feasibility of pursuing OB.

Demonstration Process

The 2012 summer demonstration will fall into two main parts, a "Dry Run" and the "Live Demonstration". The Dry Run is just that, a dry run of the process and concept. The Dry Run will coincide with the AWC's Aviation Weather Testbed Summer Experiment, June 4-15, 2012. The purpose of the Dry Run is to conduct a technical test of hardware and software systems to be used, as well as validating the planned collaboration and notification processes. Phase 1 of the Dry Run (June 4-5) will verify that the AWS can be technically produced, externally disseminated, collaborators can access the NWSChat OB collaboration room, etc. Phase 2 of the Dry Run (Jun 6-15) will run an OB "desk" each day between 8:00 A.M. and 4:00 P.M. CDT. This will involve WET members and a small set of NWS and Airline Meteorologists collaborating on the creation and issuance of AWS. This will be done following the defined OB process and AWS issuance criteria and format. The AWSs produced will be externally available on the AWT Testbed website. Dry Run team members with TFM experience (e.g., AT and airline personnel) will review the AWS and

provide feedback regarding the utility and suitability of the product for TFM decision making.

Feedback from Dry Run participants will be recorded using observation logs and questionnaires. The WET will be responsible for documenting all feedback during the Dry Run. A questionnaire will include questions about participant perceptions of the product presentation, forecast length, update rates for strategic planning horizons, utility of forecast information for specific planning tasks, and other general perceptions.

The Dry Run and associated lessons learned are expected to further refine preparations for the Live Demonstration July 15-Oct 31, 2012.

Live Demonstration

The Live Demonstration will run between July 15 and October 31, 2012. The Live Demonstration will only run on Wednesdays and Thursdays of each week during the active dates. NWS National Aviation Meteorologists (NAM) staffed at the FAA ATCSCC will add an additional operational shift on Wednesday and Thursday in support of the Live Demonstration. On these days, the NAM will play the role of Operational Bridging Meteorologists; notifying participants and leading event-driven collaborations, preparing and disseminating the AWS, and briefing the ATCSCC. On the designated Live Demonstration days, the demonstration will run from 6 A.M. EDT to 9 P.M. EDT.

Collaboration will be done using NWSChat. A chat room has been established specifically for the OB Demonstration. It is identified as, “awschat”. Access to this chat room will be limited to Participants in the Demonstration. Participation members include, Airline Industry meteorologists and NWS meteorologists at AWC, ATCSCC, and CWSU (ZNY, ZDC, ZOB, ZBW).

The Live Demonstration, and associated collaboration chats will coincide with real-time operations at all these facilities. As a result it is recognized that not all participants will be able to fully participate in every event-driven chat. Operational concerns will always take precedence over this demonstration. One of the main points for doing the Live Demonstration is to determine if such ad-hoc collaboration can occur in the operational environment.

In the event that the NAM desk at ATCSCC cannot support the additional operational shift on a given Live Demonstration day, the NWS Liaison to the ATCSCC may fill in, overtime may be granted to the NAM, or the Demonstration may be cancelled for that particular day. Additionally, properly trained meteorologists at the AWC may fill in. In the experimental nature of the Live Demonstration it is important to realize that in an end state of these concepts, OB and AWS production and collaboration may not be an ATCSCC function.

Aviation Weather Statement

Creation Software

AWC will use NAWIPS/AWIPS drawing and text editing tools when available. Microsoft Office Power Point software will be used if/when operational NWS systems are not available.
NWSChat will be used for meteorological collaboration.

Dissemination

The AWS will be available on the AWC Testbed website at the URL

http://testbed.aviationweather.gov/page/public?name=Operational_Bridging

Additionally the AWS may be emailed or faxed to specific addresses or facsimile machines in accordance with pre-arranged agreements per the Operational Bridging demonstration.

Issuance Guidelines

Following the Operational Bridging process (figure 1), meteorological collaboration, and AWS production will occur in one of three general scenarios:

> Addressing Anticipated "NAS-impacting" Convection initiation and/or cessation
>
> "NAS-impacting" Convective weather active and (official) forecast(s) are verifying/occurring as expected
>
> "NAS-impacting" Convective weather active and (official) forecast(s) are not verifying/occurring as expected

Issuance Criteria

AWS issuance will be predicated with a collaboration session between available affected or interested meteorologists. The collaboration will be done via NWSChat. A notification call will be placed prior to the chat session beginning.

An AWS will be issued during when:

> Thunderstorm activity is expected (high confidence) to develop or move to within the airspace of ZOB, ZNY, ZBW, and the northern half of ZDC impacting the New York Metroplex airports during the high demand hours of 0700L – 2200L within the next four hours, is eminently expected, or occurring.
>
> Thunderstorm activity that was forecast to occur within the airspace of ZOB, ZNY, ZBW, and the northern half of ZDC impacting the New York Metroplex airports during the high demand hours of 0700L – 2200L, is no longer expected within the next four hours.
>
> Thunderstorm activity occurring within the airspace of ZOB, ZNY, ZBW, and the northern half of ZDC impacting the New York Metroplex airports during the high demand hours of 0700L – 2200L is expected (high confidence) to cease one or more hours than previously forecast.
>
> Conflicting forecasts of thunderstorm activity forecast to occur within the airspace of ZOB, ZNY, ZBW, and the northern half of ZDC impacting the New York Metroplex airports during the high demand hours of 0700L – 2200L; the AWS is issued to provide clarification.

Corrections, Cancellations, and Amendments

Each issuance of the AWS will be a stand-alone version. If an AWS refers to a previously issued AWS, the new one will reference the previous by the AWS Issue Number. (each issuance is numbered). Event driven information from the AWS will supersede any scheduled or unscheduled forecast product

> Corrections If an AWS is in need of a correction, a new AWS will be issued with a new AWS Issuance Number. In the Discussion section, the AWS being corrected will be identified by issuance number, along with a brief statement why the correction was issued, along with the corrected information. At this point the corrected AWS will supersede the AWS it corrects.
>
> Cancellations For impacts which cease as prescribed by an AWS, no cancellation AWS will be issued. If conditions prescribed in an AWS end sooner than the original AWS stated, and NAS impacts are no longer expected, a cancellation AWS will be issued. The cancellation will refer to the original AWS by issuance number and the discussion will state that the impact threat has passed, or will not occur and that the original AWS is cancelled.

If the impact of an AWS will persist longer, or evolve differently than described, an amendment will be issued.

> Amendments If an AWS is in need of amended or additional information, a new AWS will be issued with a new AWS Issuance Number. In the Discussion section, the AWS being amended will be identified by issuance number, along with a brief statement why the amendment was issued, along with the amended information. At this point the amended AWS will supersede the AWS it corrects.

Issuance Time

AWSs are non-scheduled, event-driven products. The AWS will be issued according to the Operational Bridging process (figure 1), following a meteorological collaboration session. The time that the AWS is disseminated will be the issuance time.

AWS Issuance Number

Each issuance of the AWS (whether a correction, amendment, or cancellation) will be numbered sequentially.

Valid Time

The valid time is stated in the text of the AWS, labeled as "Impact Valid Time". The valid time should be the specific hours (start and end time) that NAS element(s) are expected to be impacted. Typically, the AWS valid time should not exceed 4 hours from issue time.

Product Expiration Time

The expiration time is the end of the valid time.

Technical Format Description

AWSs will follow the format and content described in this section. Refer to figure 2 for an example of the AWS format

> Mass News Disseminator Header The AWS MND header is "AVIATION WEATHER STATEMENT nnnn", where nnnn is a four-digit issuance number reset to 0001 on 1 January at 0000 UTC. The following line will contain where the AWS is issued "NWS AVIATION

WEATHER CENTER KANSAS CITY MO". The third line will consist of the four-digit issuance time (UTC) followed by the day of the week, month, date, and year.

NAS Elements Affected This line will list all the NAS elements which are expected to affected by the AWS, such as ARTCC Centers, TRACONs, Airports, Metropolitan areas, and specific jet routes.

Impact This line will describe the expected impact in general terms. This should usually be 1 to 3 short sentences.

Impact Valid Time The Impact Valid Time will contain a beginning and ending time (in UTC) for the expected impact. In most occasions, with some amount of "lead time", the Impact Valid Time will begin sometime after the "issue time". The impact ending time will denote the time that the impact will either dissipate, or will no longer be disruptive to the NAS.

Discussion AWC uses the Aviation Weather Statement (AWS) to alert Collaborative Decision Making Stakeholders of impacts to safe and efficient NAS operations.

Figure 1. Operational Bridging Process flow chart.

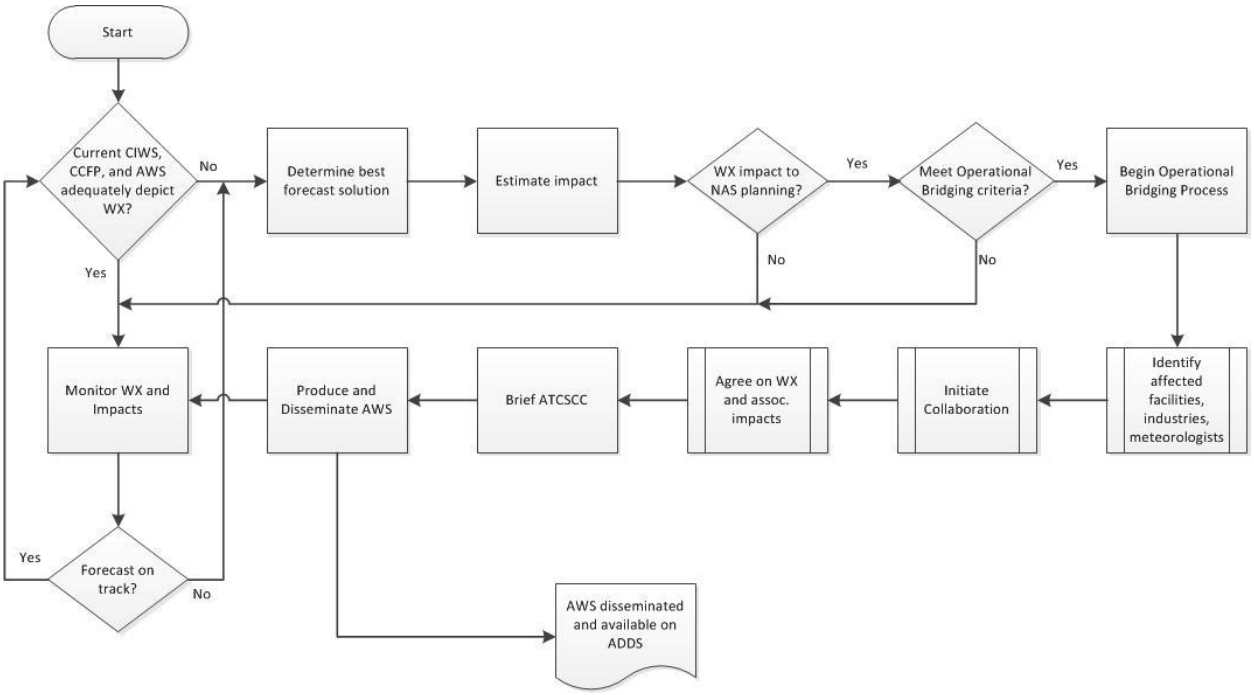

Figure 2. Aviation Weather Statement Template.

AVIATION WEATHER STATEMENT nnnn
NWS AVIATION WEATHER CENTER KANSAS CITY MO
ttttZ DAY MON dd, 2012

NAS ELEMENTS AFFECTED...

IMPACT...

IMPACT VALID TIME...ttttZ-ttttZ (or ttZ-ttZ)

DISCUSSION...