

Flight Planning Process and Forecast Practice

Flight planning timeline

Products for Flight Planning

Forecast practice description

Planning Timeline (Day Prior to flight)

- Prepare Met Briefing to be delivered to mission and flight scientists by 9:30 AM (10 - 15 minute briefing). This includes outlook for tomorrow (flight day) in terms of operational constraints and locations of convective targets. This also will include a longer term outlook for overall convective intensity and operational constraints (Head met person -- Pfister, Selkirk, or possible delegatee)
- Prepare Specialty Product briefing to be delivered to mission and flight scientists by 9:45 AM. This is focussed on chemical products (output from GMAO chemistry, lightning influence, convective influence etc -- designated theorist, e.g. Pickering, Kawa etc)

Planning Timeline (Day Prior)

- Based on the briefings decide on overall mission strategy for tomorrow (A-train or morning flight, general target area), or (unlikely) scrub next day's flight.
- Meteorologists and designated theorist depart for hotel early afternoon.
- Formulate plans and deliver to pilot by deadline (about 2 PM, maybe sooner for DC-8).
- Flight and mission scientists depart for hotel mid afternoon.

Planning Timeline (Flight Day 1)

- Meteorologists, designated theorist, and satellite person around 11 PM after a jolt out of Ambien induced slumber. Produce a met briefing by 1:00 AM, and a theory briefing by 1:15 AM.
- Flight and Mission scientists arrive around 12:30, receive the briefings, and proceed to generate modified flight plan(s), which are delivered to pilots around 3 AM. Decision made as to whether to go for A-train ER-2 validation, in which case we delay ER-2 takeoff by 1 hour or so (??)
- 4 AM or so. TAF available from airport, and B-57 and ER-2 may scrub. If no scrub, request SRSO.

Planning Timeline (Flight Day 2)

- [If ER-2/WB-57 scrub, DC-8 can delay, do a 4 hour A-train validation, and still fly the next day (??)]
- 6-7 AM. ER-2 and WB-57 takeoff. As aircraft approach convective targets, monitor progress and “control” aircraft via phone (mission scientist(s), satellite person, radar person, some flight scientists).
- If back-to-back, met and theory briefings at 10 or 11, with flight planning process leading to delivery of plan around 2 (flight and mission scientist teams need to plan around simultaneous planning and real time guidance activity)

Planning Time Line (Flight Day 3)

- If not back-to-back, still have briefing at regular time to maintain rhythm of mission. Also would use briefing info to make decision about having a back to back starting two days from now.
- Met people, designated theory person and satellite person escorted out of crisis room to get some sleep in early afternoon (a long day -- been there since 11 PM)!!
- Flight scientists and project scientists ejected from the premises to get some sleep soon after ER-2/WB-57 landing and debrief (1 -2 PM)
- Radar folks monitor local weather for the DC-8 (including a designated radar person from met team)
- If back-to-back, mission scientists should probably not wait for the DC-8 -- not enough sleep for next day's activities. This will be hard for the DC-8 folks!!

Available planning products

- Satellite imagery, radiosondes, surface obs, radar
- NCEP global model, Air Force MM5 model (web products), WRF model (SERVIR Panama and NASA/MSFC), UCR MM5, IMN Workstation Eta, and GMAO GEOS-5.
- Lightning influence, Convective influence, near real time AIRS temperatures (B Troy)
- Other near real-time satellite products that might be useful

Forecast Practice, May 7-9

- Simulate 3 phases of flight planning (day before, just before flight, during flight).
- Have chosen 5 dates in 2005 and 2006
- Putting together forecast products for these past dates (NCEP forecasts, GMAO forecasts, satellite imagery, METARS, TAFS in some cases, UCR mesoscal model forecasts, radiosondes) for the three phases
- Dates will not be known to flight scientists until start of practice (?)

Forecast Practice (cont)

- Follow similar timeline to structure
- Day before -- Provide met briefing, go through previous day flight planning process (abbreviated). Only have products available that would have been available at this time.
- Morning of flight -- Proceed with flight plan modifications with new products.
- During flight -- Make real time adjustments based on satellite imagery (no radar available)