Coordination Functions:

- Determine status (equipment, weather, science
- Develop Plan (next day, next mission)
- Implement Plan
  - Communicate (science participants, ops personnel
  - Launch decision
  - Updates
  - Documentation

Daily Planning

Status

a. Equipment

- Aircraft and instrumentation
- Ground sites
- Communications
- Special model products

b. Weather

- Map discussion (normal weather products)
- Model discussion (aerosol transport models)
- Satellite discussion (dust, pollution, clouds)
- Focus on: dust production, location and trajectory of dust and pollution plumes, weather at airports, wind at flight levels, cloud locations (esp if in dust plume) – other?

Daily Planning

Develop Plan

a. Ideas:

Coordinating scientist leads discussion

Proposals and suggestions by all

b. Operational considerations (project manager, operations)

c. Discussion

d. Selection (lead scientist / ops coordinator)

Daily Planning

Implementation

a. Post plan: field catalog, e-mail distribution, call-in message written in meeting room, ...

b. Communicate to remote teams: Alaska, Japan, aircraft, ground sites, as needed

c. Nowcast updates (esp. next morning); relay to G-V.

d. Obtain records: (all to field catalog)

   Flight summary (mission scientist)

   Instrument-scientist impressions and notes

   Flight summary from ops coordinator

   Other notes (opportunity for anyone to contribute)

e. Research data products: provision for archival

Structure for “Chat”?

- Useful to have different “rooms” for different functions; e.g.,
  - Ops-center line to aircraft scientists
  - Technician line (ground and aircraft)
  - Other science participants
  - Special-instrument discussions
  - Special education-oriented room
  - Personal-information messages (no log)

Data Catalog

- Forecasts and summary
- Plans (Operations and Flight)
- Flight Data summaries and references
- Reports
  - mission scientist(s) and ops coordinator
  - instrument operators as feasible
  - forecaster comments
- Project goals check-list (daily and cumulative)
- Research data products (discuss?)

PACDEX Field Catalog contents

Reports:

- Mission Plans
- Forecast Briefings
- Mission Summaries
- Chat Logs
- Instrument Status reports
- Daily reports from participating groups at various institutions
- Satellite analysis and interpretation from collaborators at NASA LaRC

Operational Products:

- Satellite Imagery from NASA LaRC:
  - GOES-West
  - MTSat
  - MODIS
  - AVHRR
- GTS Surface and Upper-Air data - E Asia and North Pacific
- Aeronet products
- Asian LIDAR products and Fairbanks
- Aviation Weather (PIREPS)

PACDEX Field Catalog contents (cont.)

Model Products:

- Selected products (Rasch and Collins) & links to interactive website
- Selected products (Carmichael) & links to interactive website
- NAAPS model
- NCEP or NOGAPS?

Are there other products that should be included?

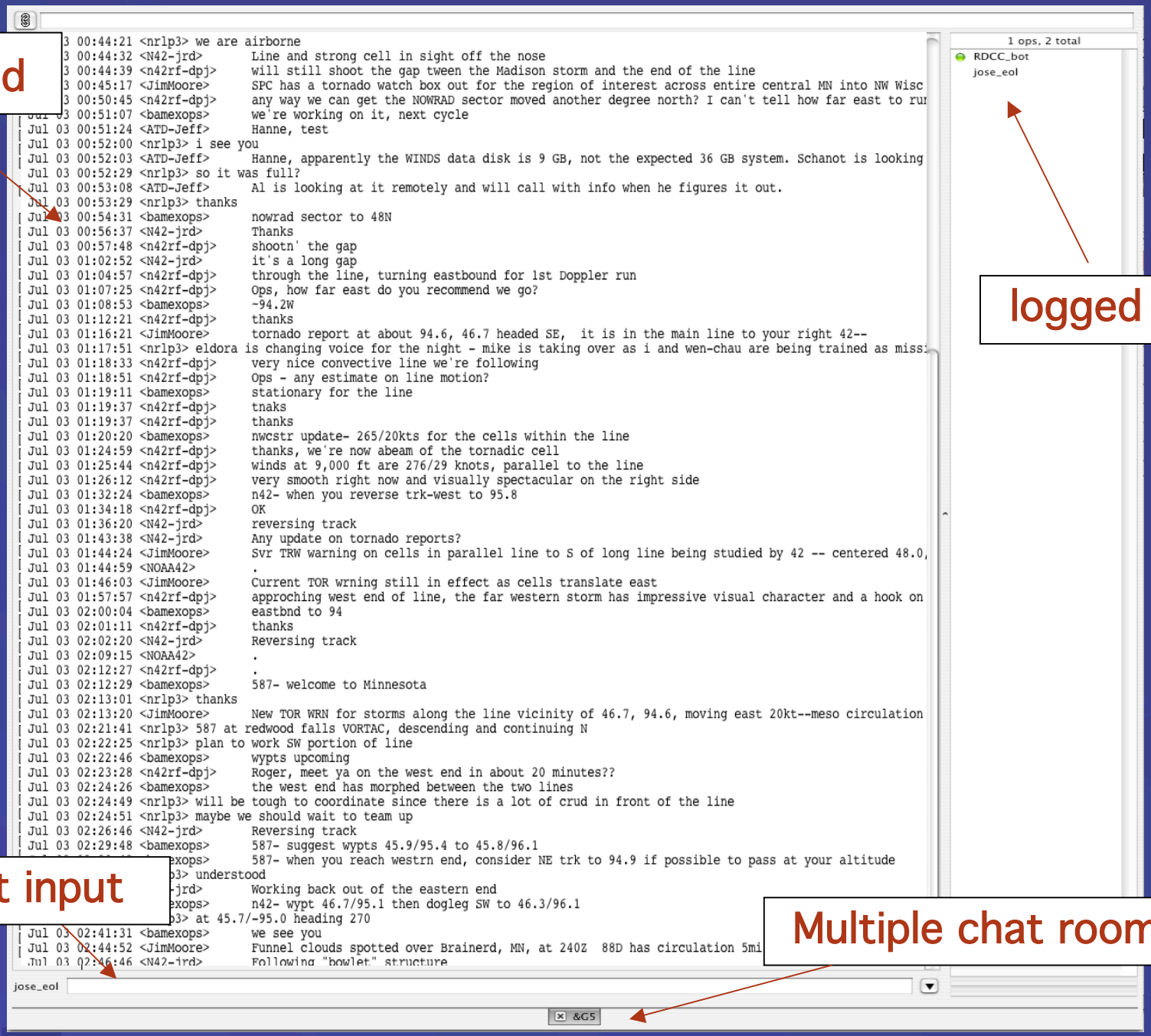
What products need to be sent to the G-V?

- Forecast briefings
- Mission Plans
- Satellite interpretation
- Selected Satellite Imagery
- Few model plots valid during flight
- Aviation Weather products

EOL
Deployment
Development
Data Services

EOL XCHAT interface

time stamped



logged use

text input

Multiple chat rooms

EOL
Deployment
Development
Data Services

Suggested timing:

- Daily planning meeting at 1400 MDT (2000Z/1200A/0600J)
- Decisions made and posted by 1630 (2230Z/1430A/0830J)
- Optional update meeting at 0800 MDT when in AK (1400Z/0600A/0000J) – maybe later (1100) if in Japa

For flights (all times UTC):

- Talk in UTC only? (MDT is UTC-6; AKDT=UTC-8; JST is UTC+9) – let everyone convert to L time locally.
- End planning/update meetings 2200Z (2h) / 1500Z (1h)
- Flights 1630-0230Z? (14h between flights):
    - | 1630 – 2300 (+3.5=0230) to AK
    - | +14h=>1630 -> 0230Z to Japan
    - | +14h=>1630* Japan-vicinity->0230
    - | +14h=>1630* ->0230 to AK
    - | +14h=>1630 -> 0230 to AK or BJC
- *Japan takeoff time awkward (0130L); delay 7 h to 2330Z?
- Then arrive AK at 0930Z (0130 L) – need day of rest?

Meeting Mechanics

- Daily planning: Jeffco Conference Room
- Dial-in (800) phone conference available
- Compile and post briefing package (weather and status) to field catalog before meeting, for remote participants: need information from participants for this to work.
- Access grid? Other easy solutions for teleconferencing?

Open Questions

- Forecaster(s)? Greg Stossmeister; who else can help?
  - Greg Carmichael's team?
  - Natalie M/Phil R?
  - J Jensen? D Rogers? CSU?
  - Greg S to contact?
- Participation by: model teams, satellite team, instrument representatives, lead scientist, operations group, project management, ... Resolved.
- Access grid? Downloadable option being investigated. Jose to query PACDEX investigators re what they have available / would use.
- Education team? Class interest? Cindy (lead to develop plan), PPilewski, Ram, Jeff S., Collett. Mentors?
- Chat structure?
- Decision responsibility?
- Mission-critical instruments? (none?)

Open Questions (2)

- Properties most useful for aerosol-model forecast? Greg C. to coordinate.
- Satellite products: Kirk A. (clouds), Steve M (aerosols and OMI, MOPPIT CO and other chemistry). Also coordinate with aerosol-modelers re products to focus on.
  - Idea: Satellite views with winds to help estimate future positions
- Quantities/maps to aircraft during flight? Jeff S./Cindy/ et al.
  - Get base-map to field catalog matching what flight ops is using
  - kml via Google-Earth or field-catalog images? (Greg. S to offer recommendation re satellite-to-aircraft options)
- " " from aircraft to ground? Al C.
  - Can AEROS data feed go outside security perimeter? Chris W.
- Data management plan?
- Science-goal checklist
- MOA effects on mission
- Stepped vs racetrack profiles; sampling requirements for different investigators
- Products to A/C field catalog during flight?
- Rehearsal-period procedures…

Open Questions (3)

- Data management plan? EOL data OK; need for a more comprehensive data repository? Jeff - coordinate with science team to propose what is needed. (S Williams et al) Maybe “data workshop”
  - Satellite perspective: send GIFs to field catalog. Will maintain raw data for ~2 years, so can add to repository later.
  - SP data (DMT) – gigabyte size. Raw: archive at DMT; distilled to repository?
- Science-goal checklist. Instead, use operational check-list: Jeff S. (w Ram)
  - Cloud-free vertical profiles 3-5 distances downwind from Asia, characterizing aerosol properties within and outside dust and within and outside pollution-plume (if possible)
  - Plume-cloud interactions at similar distances (cold clouds and warm clouds)
  - Obtain horizontal transport legs in dust / C aerosol to look at transformations with time.
  - Ground-site overflights (Sassen and perhaps others)
- MOA effects on mission. Include in rehearsals, contact to see if it would be feasible during rehearsal-missions.
- Stepped vs racetrack profiles; sampling requirements for different investigators. Be aware of trade-offs. Modest climb/descent probably OK. Pursue more at rehearsal.
- Products to A/C field catalog during flight? - yes
- Rehearsal-period procedures… Al C. to propose…

Open Questions (4)

- Field-Catalog products: reports and operational products [aerosol products from satellite; OMI, MODIS …]
- Sounding products over ocean? (COSMIC?) Greg S.
- Vertical cross-sections at 3 key locations – request from model groups – Greg C to coordinate, save in field catalog.
- Crew swap in AK to avoid down-day on return? Keep on table? Will add Campos alternate.
- De-ice? Can instruments operate? (Prob. Not)
- Scanning capabilities at Jeffco (annotate products and send) – or photo? WAC

Notes re: Instruments

- CVI: under construction. Need N2 (10L/min -> 4 large cylinders (with DeMott needs); will have 5. Stage some to Anchorage. Small butanol bottle (100 ml or s per segment). No special pre/post-flight. Q: inlet-fragments? A: titanium inlet, J Anderson will see. Other coatings like sea-salt harder… Needs:
  - Rack drawing; Steve G to produce by Monday…
  - Look at interconnect diagrams.
- Kok: SP2, CCN ready in another week.
  - Need pictures for dual-channel instrument; didn't come through.

Notes re Instruments

- Anderson: 2 identical systems, streaker, rotary sampler and impactor. One on HIMIL, one for CVI. Odds-and-ends now.
  - Interconnect
  - Pavel: rack diagram (or DFS). May use photo. Rest of rack: laptop for video, slide-out tray. Also HIMIL heater circuitry.
- GNI: lacking final install drawings; have ELA info and interconnects. GNI status uncertain…
- CDP: will get Friday. Kok: show up with rack loaded, need inspection? Yes, need to look. DER too.
- Wing stores incl UHSAS – should be OK, may need some ballast.

Science Objectives

- DeMott: particles that are IN. Expect dust to be important source. Like to see dust, carbon alone, gradients, esp. cold cloud interactions (HIMIL outside cloud, CVI inside). Interested all temp. Also collect activated samples for EM.
- Anderson: aging of black carbon: open soot particles collapse through cloud interactions or aging? (Doubts it.) Black C optical properties. Large variety in types o b carbon. Range in absorption properties. SEM (automated, useful for dust); high-res imaging in another SEM for mixed b.c./dust, & others. Interested in GNI for large particles. Like 5-10 min at one level if

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- Kok/Baumgardner: SP2 and single-particle soc photometer. Transformation of mixing state wit time across the Pacific. Doesn’t need much time.
- Roberts: like to see measurements near cloud base. Need measurements in warm region. Also, like to see near-source and far-source aerosols as CCN.

Notes re Instruments

- DeMott: refrig system changes, at DFS now, covers for pumps. Shooting for ready in 2 weeks, to install as scheduled. Worried, weight increase, approaching limits. Waiting for DER t redo document with refrig changes. Electrical: diagrams final, end of week. Minor needs, incl dist. Water. Structural analysis doc:
  - Remove (insert here) and (place picture here)…
  - Looking at plumbing diagram.
  - Electrical: added section, ready by Friday.

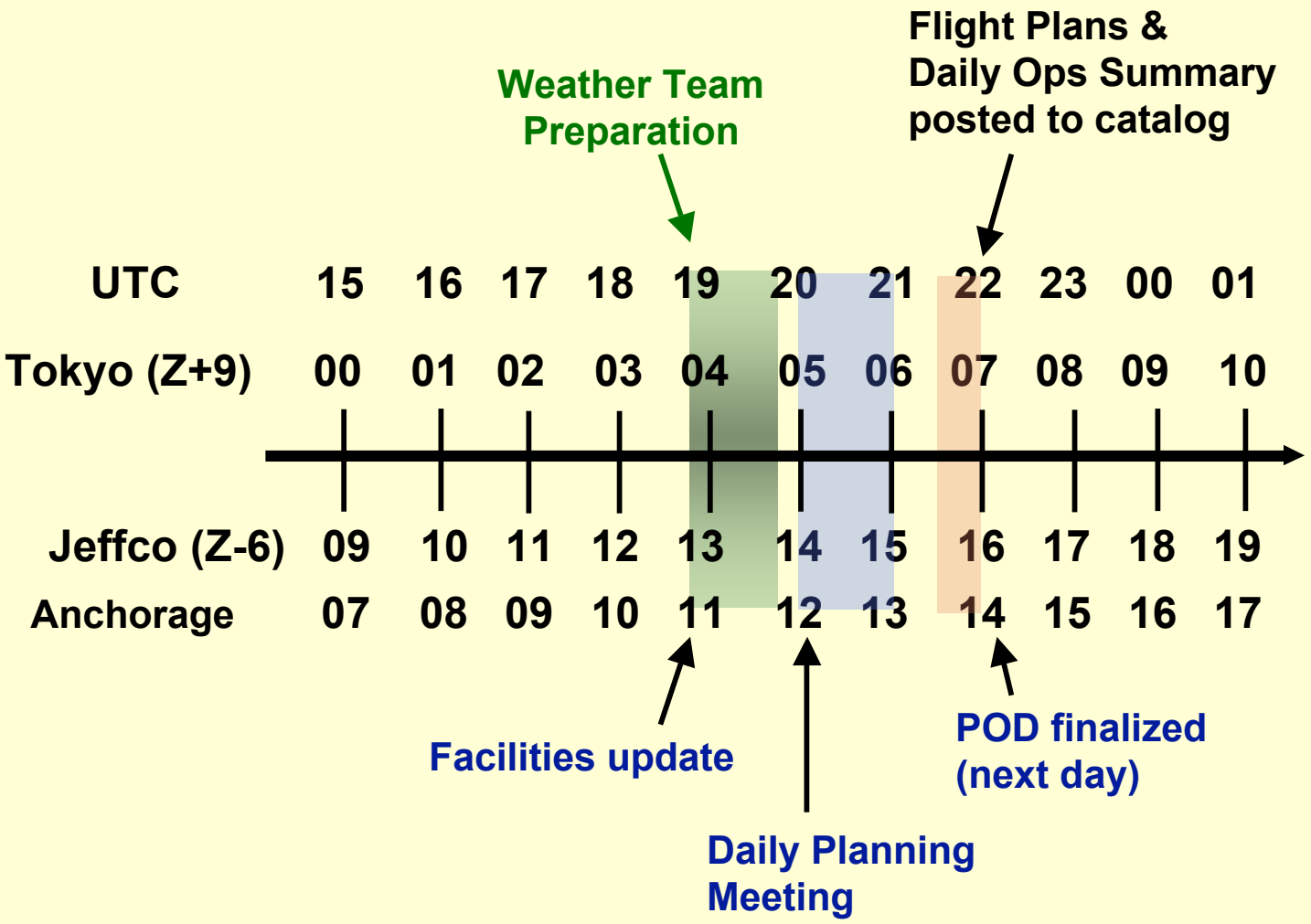
Notes re Instruments

- Compressed=gas rack
- CO/O3/SID2. CO operational, need to be re-assembled. O3 to be added. Use existing documentation from TREX. Have power supply install on outside of rack. Pavel will do moment and weights. Rack should be OK. SID2 is 2U rack-mount computer. Will share keyboard/monitor with CO, with toggle switch for display
  - Interconnects and rack layout, assemble to one package

Notes re Instruments

- DRogers: same as in TREX. No nephelometers (a change).
- HARP rack: in assembly. Cal is an issue. Like to cal every flight (2 people, 2 h; get on top of aircraft) Will fl with cal unit; needing access to lift (but maybe not to tail). Need someone on crew. (Teresa can help.) Migh have someone in Anchorage. Radiometers: test fittings done, OK; don't expect issues. Pending is fibe in tail (actinic flux).
  - Electrical, complete now.
  - Need single rack drawing, not two, for act. Flux and radiometers
- 2 short, 2 tall HIMILS, and misc. hardware incl

Daily Timeline for Operations



Daily Timeline for Operations

Various 9-hr flight (with 3 hr pre-flight) schedules
0900 LT takeoff