Back

NOAA
Light Aircraft Forum

SESSION RESULTS
November 15-16, 2001

Executive Summary

November 15-16, the Light Aircraft Workshop was focused on gathering the inputs of light aircraft users and service providers on:

~ New light aircraft opportunities in NOAA
~ Desirable capabilities to which NOAA Line Offices would like access.
~ Existing or future changes in technology and the impact on future requirements.
~ Performance measures for OMAO.
~ Expectations of OMAO.

The workshop was structured to achieve maximum participation and input. Six tables with 5 participants each, representing a cross section of NOAA Line Offices and OMAO personnel, were challenged with the tasks to formulate responses and to offer top 5 priorities for each of the 5 topics.

The following summary offers highlights of the 5 rounds of inputs conducted in the work session. The details for each are contained in the body of this report.

The Fundamentals

Before offering the summary of the responses, it must be noted that overarching issues emerged during the participant deliberations. It became evident, that underlying any/all responses to the platform related questions, are fundamental issues that must be addressed by NOAA Executive leadership. They are:

- NOAA Leadership must decide the fundamental, in-house, core aircraft capability that NOAA must have to meet its mission. (What's the line in the sand?)
  - ~ Each Line Office must answer and then integrate.
- We must then assess the cost of the private sector portion of the work to complement the core mission and core capability.
- A policy determining whether Line Offices should have dedicated platforms must be made. If a Line Office is willing to pay and fully utilize the platform, should they therefore get exclusive rights?
- The NOAA strategic planning process must allow for early consideration of infrastructure needs in budgets.
  - ~ Overhead must be built in early on in the strategic planning process.
  - ~ We must connect and package the "how" (infrastructure) with the "what" (program mission needs) at the front end.
- Ultimately, we must go to base funding for aircraft and get away from the initiatives process (for maintenance, upgrades, replacements). We will never get ahead of the curve if we don't fund platforms out of the base as fundamental to mission support.

Additionally, workshop participants offered other broad recommendations for any/all policy decisions regarding NOAA platforms. Suggestions include:

- Safety must be fundamental and is a solid foundation for our core capability. There is, however, a price tag associated with safety. We must be explicit about safety

costs as well as mission costs.
- Regardless of the core capability level we determine, it is clear public/private partnerships are crucial to ultimate performance of mission support.
- Finally, whatever we do with NOAA platforms, we must ensure flexibility and be ready to adapt to changing conditions, technology and demands.
- Wherever possible, we should borrow from other agencies' best practices on funding, strategies, performance, customer services practices.

Generally, the feeling of participants was that most of their deliberations are someone "moot" unless agency leadership focuses and makes tough decisions about funding and use of aircraft in NOAA.

New Light Aircraft Opportunities
Many new light aircraft opportunities were offered by participants. There were a number of common themes worth noting that emerged across all 6 tables. Participants provided new opportunities in the areas of:

- Rapid response
- Research
- Enforcement
- Homeland Defense
- Technology transfer/development
- Data collection
- Mapping
- Monitoring

Furthermore, there was commonality in approaches to new opportunities and they included the following overlay themes:

- Use of partnerships – public/private
- Geographic/regionally based approaches
- Remote sensing technology and applications
- Intra/interagency coordination
- Intra-agency costs and capacity

What capabilities would NOAA Line Offices like to have access to?
Participants offered a number of fundamentals as well as specific platforms and capabilities in response to this question. There were common themes that surfaced including:

- Safety
- Funding (base)
- Accessibility and availability
- Standard suite for all platforms
- Regionally based availability
- An additional Twin Otter

What existing or future changes in technology affect future requirements for light aircraft?
Participants explored a number of changes that will affect future requirements for light aircraft. Across the 6 tables, the following topics emerged as recurring themes:

- Instrumentation changes
- Platform requirement changes
- Training/personnel changes – different/additional skills
- Larger data sets
- Integration
- Standardization
- "Real time" expectations
- Increase in customer/user expectations on performance

What ideas do you have on performance measures for OMAO?
The performance measures discussion was as challenging for conference participants as it has been for OMAO. OMAO offered a "work in progress" and requested feedback and additional ideas. It is a difficult subject evidenced by the high variability in table responses. There were a number of alternatives offered to the "straw" presented by OMAO. They are contained in the table results. Furthermore, the customer feedback form received support with some changes, in both content and process.

Expectations of OMAO
Finally, attendees were asked to outline their expectations of OMAO. Their responses were quite consistent across tables and offered the following recurring themes:

- Base funding
- "One stop" shopping
- Engineering support
- Streamlining the request process and other administrative processes
- Safety
- Personnel
- Flexibility
- Partnership broker

Conclusion
Assuming NOAA leadership makes some of the tough policy decisions, the customers and suppliers who attended the forum validated the need for light aircraft in NOAA and offered specific priorities to meet their needs. The collective group of "working level" personnel were very much aligned in their commitment to NOAA platforms and to working together to meet NOAA mission objectives.

Input Sessions: Table Results

Table Participants

Table #	Participants
1	John Adler (AOC) Mike Aslaksen (NOS) Ray Hosker (OAR) Dave Rathbun (liaison to Navy) Jon Bailey (NOS)
2	Adam Dunbar (AOC) Paul Moen (NOS) Winston Luke (OAR) John Herring (NMFS) Wade Blade (NMFS)
3	Alan Goldstein (AOC) Jeff Hagan (NOS) Tim Crawford (OAR) Gregg Lamontagne (NMFS) Bob Maxson (AOC)
4	Jim McFadden (AOC) John Longenecker (NOS) Celso Barrientos (NESDIS) Dave Savage (NWS) Mike Weaver (AOC/RSD) Cheryl Yuhas (NASA)
5	Carl Newman (AOC) Andrea Hrusovsky (NOS) Brad Kearse (AOC/RSD) Fred Rossman (OAR) Tim Cole (NMFS)
6	Garner Yates (AOC) Todd Jacobs (NOS) Tom Watson (OAR) Mike Tomlinson (NWS) Nathalie Valette-Silver (OMAO/NOS)

What new light aircraft opportunities exist in NOAA?

Common Themes

- Rapid response
- Research
- Enforcement
- Homeland Defense
- Technology transfer/development
- Data collection
- Mapping
- Monitoring

How's

- Partnerships – public/private
- Geographic/regionally based
- Remote sensing and its applications
- Intra/interagency coordination
- Intra-agency costs and capacity

Table 1

Top 5

1. Capability and end-to-end services.
2. Contractor verification and validation.
3. Partnerships in developing and evaluating new technologies.
4. Rapid response.
5. Enforcement and defense.

Brainstorm

6. Research – partnerships in developing and evaluating new technologies.
    - ~ New remote sensing test and evaluation.
    - ~ New ocean observations systems (NWS underwater).
    - ~ Hyperspectral sensing (with NRI).
    - ~ Reliance on NOAA expertise – atmospheric dispersion, weather.
    - ~ Hydrology sensing/MC&G.
    - ~ Partnering with internal and external groups on new technology.
7. Capability of end-to-end services.
    - ~ End-to-end data collection and analysis to users.
    - ~ Reliance on NOAA expertise – atmospheric dispersion, weather.
8. Enforcement and defense
    - ~ Remote (aerial) inspection of vessels
        - Fisheries enforcement
        - Contraband/weapons, etc?
9. Contractor verification and validation
10. Rapid response
    - ~ Rapid response to net or other disasters.

Table 2

Top 5

11. Remote sensing applications.
12. “Groundtruth” satellite data.
13. Interagency – light air coordination.
14. Disaster response.
15. Expand aircraft/shift coordination capability.

Brainstorm

16. Remote sensing applications.
    - ~ Mapping
    - ~ Habitat characterization
    - ~ Surveys
    - ~ Harmful algal blooms
    - ~ Atmospheric research
    - ~ Resource measurement.

17. Groundtruth satellite data.
18. Interagency – light air coordination.
    - ~ Intra – fill gaps in fish enforcement resulting from lack of CG enforcement.
    - ~ Develop platform of opportunity program for instrument, R&D, piggyback projects, etc.
19. Disaster response
    - ~ Personnel transport.
    - ~ Remote sensing
    - ~ Damage assessment
20. Expand aircraft/ship coordination capability (i.e., helo platforms).

Table 3

Top 5

21. Remote sensing satellite groundtruthing.
22. Quick response/short duration missions.
23. Security
24. High altitude (40,000+)
25. Low and slow – boundary layer research.

Brainstorm

26. High altitude – air chemistry, ozone (40,000+). (2 votes)
27. Low and slow – boundary layer research – many assets removed from area. (2 votes)
28. Remote operated platforms. (2 votes)
29. Remote sensing and ground truthing. (4 votes)
    - ~ Biological survey (NMFS).
    - ~ Hazmat response (NOS)
    - ~ EPA compliance.
    - ~ LIDAR apps to nautical and aeronautical.
30. Security (3 votes)
    - ~ Detection capability – nuclear, bio, chemical.
    - ~ Terrorist response.
    - ~ Port/airport (PSU augmentation – USCG).
    - ~ Enhanced data products for airport/port authority.
    - ~ Airport imagery for security/safety audits.

6. Quick response/short duration. (3 votes)
    - ~ Interagency partnerships.
    - ~ Pfisteria – WTC – Algal Blooms – critter transport natural disater (tornado hurricane post survey).
    - ~ Oil spill response.
7. Protected resources – right whale (management and research. (2 votes)
8. Enforcement – fisheries regs (NMFS). (2 votes)

Table 4

Top 5

31. Enforcement
32. Coastal zone
33. Private/public partnerships
34. Interagency
35. Validation of satellite data.

Brainstorm

36. Validation of satellite data. (3 votes)
    - ~ Remote sensing for calibration and validation in coastal and inland waters.
    - ~ HAB research.
37. Interagency (5 votes)
    - ~ ACOE – everglades restoration.
    - ~ MOU NAVO to use NOAA Light Aircraft.
    - ~ Terrorism – airborne radiation detection and nuclear power plant patrols.
38. Coastal Zone (2 votes)
    - ~ State beach replenishment programs.
    - ~ Shallow water bathymetry.
    - ~ Coastline definition.
    - ~ MOU NAVO to use NOAA Light Aircraft.
    - ~ Coral reef mapping – U.S. Coral Reef Task Force.
39. Enforcement (3 votes)
    - ~ Sanctuary enforcement.
    - ~ Fisheries LE
40. Program expansions (2 votes)
    - ~ New Alaska flight lines – AKRFC.

41. Hazards (1 vote)
    - ~ Natural Hazard Surveys.
42. High altitude. (2 votes)
    - ~ Light aircraft stratospheric air quality and chemistry exp.
43. Private/public partnerships (2 votes)
    - ~ Corporate partnerships R&D test flights and instrument validation.
    - ~ Energy – extend partnerships with hydroelectric power.

Table 5

Top 5

44. Air quality, mammal, and earth monitoring.
45. Technology advancement.
46. Homeland Defense
47. Regionally based.
48. Partnerships

Brainstorm

1. Regionally based. (2 votes)
    - ~ Hawaii aircraft
    - ~ West Coast aircraft (NW).
    - ~ NE aircraft.
    - ~ Everglades restoration – NOAA's involvement.
    - ~ High latitude work (Artic/Antarctica).

2. Technology advancement. (4 votes)
    - ~ UAV's
    - ~ Technology advancement/private industry.
    - ~ Ballons (aero stats)
    - ~ Sensor validation/calibration.
    - ~ Experimental aircraft needs.
    - ~ NOAA captures leading edge technology.
    - ~ Mammal/fisheries LR
3. Homeland Defense. (2 votes)
    - ~ DOD support for mapping.
    - ~ City mapping – Homeland defense.
    - ~ Rapid response capabilities (natural disaster, etc.).
    - ~ Safety

4. Air quality, mammal and earth monitoring. (6 votes)
    - ~ Air sampling, 1 hour flight, various locations.
    - ~ New mammal surveys (assessment surveys).
    - ~ Fisheries closure monitoring.
    - ~ Everglades restoration – NOAA's involvement.
    - ~ Mammal/Fisheries – LR.
    - ~ Maintain/upgrade twin otters.
5. Partnerships (1 vote)
    - ~ Everglades restoration – NOAA involvement.
    - ~ International partnerships.
    - ~ Continued support from FAA.
    - ~ Project sharing.
6. Enforcement (1 vote)
    - ~ Ship strike mitigation.
    - ~ Fisheries enforcement.

Table 6

Top 3

49. Research
    - ~ Carbon cycle
    - ~ Remote sensing – LIDAR/hyperspectral.
    - ~ Air surface interaction
50. Monitoring
    - ~ Hydrography
    - ~ Coral survey mapping
    - ~ Detection/monitoring – biological chemical agents.
    - ~ Bathymetry for ocean exploration.
51. Management
    - ~ Partnering with NGOs.
    - ~ Legislation for elimination of overhead.

Brainstorm

52. Management
    - ~ Partnering with NGOs. (1 vote)
    - ~ Legislation for elimination of overhead charges. (1 vote)
    - ~ Enforcement/surveillance.
    - ~ Hazmat recon.
    - ~ Emergency management.

- ~ Transportation
- ~ Detection/monitoring biological/chemical agents. (1 vote)

53. Research
    - ~ Algal bloom survey.
    - ~ Carbon cycle – terrestrial, ocean. (2 votes)
    - ~ Coral survey mapping. (1 vote)
    - ~ Local air quality.
    - ~ Habitat assessment.
    - ~ Groundtruth for remote sensing.
    - ~ Remote sensing survey - lidar/hyperspectral. (2 votes)
    - ~ Air/sea interaction.
    - ~ Air surface interaction. (1 vote)
    - ~ Detection/monitoring biological/chemical agents. (1 vote)
    - ~ Aerosols
    - ~ Bathymetric for ocean exploration. (1 vote)
    - ~ Model verification – weather, hydrology, ocean circulation.
54. Monitoring
    - ~ Algal bloom survey.
    - ~ Hydrography (2 votes)
    - ~ Coral survey mapping. (1 vote)
    - ~ Local air quality.
    - ~ Habitat assessment.
    - ~ Remote sensing survey – lidar/hyperspectral. (2 votes)
    - ~ Hazmat recon.
    - ~ Biological inventory – whales, turtles, kelp.
    - ~ Plume tracking – ocean, atmosphere.
    - ~ Detection/monitoring biological/chemical agents. (1 vote)
    - ~ Bathymetric for ocean exploration.

What capabilities would NOAA Line Offices like to have access to?

Common Themes

- Funding (base)
- Accessibility and availability
- Standard suite for all platforms
- Regionally based availability
- Twin Otter
- Safety

Table 1

Brainstorm

55. Good mix of aircraft types to cover range, altitude, mission needs.
    - ~ T, U, RH, cons over cities (low and slow measurements – GL to 10K).
    - ~ Straight wing jet, hi altitude capability.
    - ~ Mix of aircraft to cover necessary op range, altitude.
56. Better data handling and transfer.
    - ~ H-S downlink of data (RT access) – including video, LIDARS, etc.
    - ~ COTS general purpose data acquisition systems.
57. Better equipment installation capabilities.
    - ~ General purpose (flexible) inst. meeting ports/panels.
    - ~ Faster installation/removal time for instruments (one week max).
58. State-of-the-art avionics, positioning, mission support systems.
    - ~ High accuracy positioning.
59. Lower cost; higher reliability (bang for $).
    - ~ Lower costs (maintenance and operations).
    - ~ Higher reliability; reduced downtime.
60. Base funding of all aircraft to ensure equal access for missions.

Table 2

Brainstorm

61. Ability to work on West Coast.
    - ~ Geographic
    - ~ Equal access to all.
62. Customer support
    - ~ Better communications with users.
        - By process of aircraft utilization.
        - Enhance/update platform characteristics/ documentation.
    - ~ Additional platforms to ease scheduling conflicts – twin otter.
    - ~ Additional personnel for the additional work.
    - ~ Wider variety of in-house scientific support.
63. Twin engine held for ship operations.
64. Progressive maintenance
    - ~ Minimize maintenance impact to project.
65. Standard suite of instruments.

Table 3

Top 5

66. Funding issue
    - ~ Base fund LA
67. Platform availability
    - ~ SE pusher aircraft for BLR.
    - ~ 3rd twin otter.
    - ~ Replace/ren turbo.
68. Platform capability
    - ~ Uniform capabilities within/across type.

Brainstorm

69. Level ferry cost expenses (West Coast).
70. Uniform capabilities across platforms (e.g., Twin Otters are air chemical/marine mammal). (2 votes)
71. Quick response/short duration platform availability.
72. SE pusher aircraft for BLR. (4 votes)
73. Light aircraft dropsonde capability (6k – 40k alt). (1 vote)
74. Universal data system universal generic data system (e.g., GPS/navigation data). (1 vote)
75. Base funding for light aircraft. (2 votes)
76. Remote piloted vehicles (air chemical).
77. 3rd Twin Otter – West Coast/AK (air chem./marine mammal). (3 votes)
78. Straight wing jet with legs to Hawaii (NGS/RSD).
79. Replace turbo CDR - snow survey (Renaissance?). (2 votes)
80. Defecation capability.

Table 4

Top 5

81. Platforms
82. Instruments
83. Funding
84. Safe and mission ready aircraft and pilots.
85. Aircraft dedication.

Brainstorm

86. Platforms
    - ~ RPV's
        - Low level – long endurance.
        - High level – long endurance.
    - ~ Light twin longer range – turbine (2000 lbs.); payload (AK and HI).
    - ~ High altitude capability for photos and air chemistry.

87. Instruments
    - ~ Canned installation mechanisms.
    - ~ Smaller, lighter weight dropsondes – RPVs.
    - ~ Satellite communications – voice and data for light aircraft.
    - ~ New scientific instrumentation for light aircraft.
88. Funding
    - ~ Base funded platforms similar to marine services ships.
    - ~ Working capital fund program.
89. Safe and mission ready aircraft and pilots.
    - ~ Dedicated light aircraft for NESDIS.
90. Aircraft dedication.
    - ~ Regional distribution.
    - ~ Larger pool of aircraft – inside and outside of agency.
    - ~ Dedicated light aircraft for NESDIS.

Table 5

Top 5

91. Configuration/flexibility.
92. Aircraft accessibility.
93. Funding (base).
94. Expertise
95. Safety

Brainstorm

96. Aircraft accessibility. (4 votes)
    - ~ Everyone wants their own aircraft (regional based).
    - ~ Aircraft that can make it to Hawaii.
    - ~ Quick response/legal configuration issues.
        - Bubble windows
        - VAF
        - Marine band
    - ~ Short-term aircraft use.
    - ~ I want it now – on demand/no excuses.
    - ~ Inexpensive aircraft.

97. Safety (1 vote)
    - ~ Public use/certification.
    - ~ Safe aircraft.
98. Configuration/flexibility (5 votes)
    - ~ Low and slow
    - ~ Long flight times (endurance).
    - ~ High altitude aircraft.
    - ~ Pay load considerations – 3/4 people, 2000 lbs., 3 sensors.
    - ~ Aircraft that can handle multiple sensors.
    - ~ Clean aircraft power.
    - ~ Multiple ways to get the power.
    - ~ Good internal communications.
    - ~ UAVs.
99. Expertise (2 votes)
    - ~ Pilots mission oriented expertise.
100. Funding (base)

Table 6

Top 5

101. Funding
102. Platform capabilities
103. Services/function
104. Regional basing

Brainstorm

1. Platform capabilities. (3 votes)
    - ~ Aircraft that has range capabilities from Pacific Coast – Hawaii.
        - Taking off/landing – short runways.
        - Fast, high, slow, low
        - High wings
        - Carry weight (1800-2000 pounds).
        - Easily reconfigured – versatile.
    - ~ Boundary layer – low and slow.
    - ~ Ship able to carry aircraft.
    - ~ Citation
    - ~ UAV/RPV

~ Base funded ferry.

2. Funding (5 votes)
   ~ Engineering logistical support for mods base funded.
   ~ Base funded platforms.
   ~ Base funded flight
   ~ Base funded hours/maintenance
   ~ Service life extension.
   ~ Alaskan region.
3. Regional basing. (1 vote)
   ~ Aircraft that has range capabilities from Pacific Coast – Hawaii.
      - Taking off/landing – short runways.
      - Fast, high, slow, low
      - High wings
      - Carry weight (1800-2000 pounds).
      - Easily reconfigured – versatile.
   ~ Basic aircraft safety training.
4. Services/function (3 votes)
   ~ Role of aircraft – scientific crew; training.
   ~ Standardized installations of instruments to facilitate reconfiguration.
   ~ Capability to access easily other agencies capabilities.
   ~ Sensor/instrument coordination – internal/external pool.
   ~ SERA experimental.

What existing or future changes in technology affect future requirements for light aircraft?

Common Themes

- Instrumentation changes.
- Platform requirement changes.
- Training/personnel changes – different/additional skills.
- Larger data sets.
- Integration
- Standardization
- "Real time" expectations.
- Increase in customer/user expectations on performance.

Table 1

Brainstorm

1. Measurement improvements.
   - ~ Sensor miniaturization.
   - ~ Reduced PWR.
   - ~ Sensor fusions.
   - ~ GPS and INS improvements (altimetry).
   - ~ Improved rez of communicational satellites.
2. Computer improvements.
   - ~ Hi performance cpting.
   - ~ High data quantity, rate, storage and cross mission capability.
   - ~ GIS data mapping.
   - ~ Modeling and forecast improvements (more data needs for V&V; eventually fewer needs).
3. Platform improvements.
   - ~ Aircraft improvements
   - ~ UAV's

Table 2

Brainstorm

1. With instrument miniaturization, there is greater potential for light aircraft use where before heavy aircraft were needed.
    ~ RPV's and UAV's.
2. State of the art data/communications telemetry technologies.
3. TANS vector – GPS issues.
4. Modular instrument packages/PODs.
5. Technology experts/staff updates to technology.

Table 3

Brainstorm

6. Instrument size decrease; integration complexity (reqs folks) increase.
7. Freed up space consumed by other apps.
8. Standardize instrument i/o power and mounting req (seat track boogie board). (1 vote)
9. New missions due to technology changes allowing things previously unavailable. (1 vote)
10. Positioning information (GPS, INS, timing) integration to pilots FMS (SE: CCNS4) (2 votes)
11. Data transfer from collection platform to processing (aircraft to ground data transfer). (1 vote)
    ~ Iridium = satellite (G3 - cell)
12. Off shelf (COTS) instrument and equipment – more abundant and less costly. (1 vote)
    ~ Less low level engineer support requirements.
13. GPS navigation/approach capability.
14. GPWS, RVSM, TCAS, radio frequency spacing, etc. requiring flight avionics upgrades. (3 votes)

Table 4

Top 3
1. Increased utilization
2. Effective utilization
3. Decreased utilization

Brainstorm
15. Increased utilization.
    - ~ Advances in NANO electronics – smaller, more sophisticated instruments (light aircraft use).
    - ~ Small detection package with auto tune.
    - ~ Airborne laser hydro.
    - ~ Rapid sensor development – hyperspectral and LIDAR.
    - ~ Increase aircraft ports, inlets and hard points.
16. Decreased utilization.
    - ~ Increased use of CLB's and high altitude drifting balloons.
    - ~ Development and production of RPV's and UAV's.
17. Effective utilization.
    - ~ Advances in NANO electronics – smaller, more sophisticated instruments (light aircraft use).
    - ~ EFIS and GPS moving map.
    - ~ Precise autopilot.
    - ~ Increase aircraft ports, inlets and hard points.
    - ~ Advances in materials research – composites lighter aircraft, less corrosive.
    - ~ NASA agate advanced jet propulsion - next generation light jet aircraft.

Table 5

Top 4

18. Navigation
19. Communication
20. People
21. Aircraft configuration

Brainstorm

1. Navigation (4 votes)
    - ~ Satellites
    - ~ Equipment is lighter/smaller.
    - ~ Power requirements are going up.
    - ~ Better planning for sensor swapping/versatility.
        - Technology is changing at a faster rate.
    - ~ Upgrading navigation suites for continuity of track and data.
    - ~ Real-time data Xmit SATCOM or CEL or broadband.
    - ~ Precision FMS systems.
2. Communication (4 votes)
    - ~ Real-time data Xmit SATCOM or CEL or broadband.
    - ~ Satellites
    - ~ Power requirements are going up.
3. Aircraft configuration (3 votes)
    - ~ Autonomous equipment.
    - ~ Equipment is lighter/smaller.
    - ~ Power requirements are going up.
    - ~ UAV/RPV
    - ~ Better planning for sensor swapping/versatility.
    - ~ Fabrication of sensors/racks are standardized.
    - ~ Upgrading navigation suites for continuity of tracks and data.
    - ~ Precision FMS systems.
4. People (4 votes)
    - ~ Additional personnel needs to accommodate rapidly changing technology/training.
    - ~ Better planning for sensor swapping/versatility.

Table 6

Top 5

1. Real-time radioisotopes, chemical, biological sensors.
2. New remote sensing tools.
3. New chemical sensors.
4. Sensor fusion/integration.
5. Standard data management/interfaced systems.

Brainstorm

1. Existing (to be improved)
    - ~ GPS
    - ~ Data acquisition
    - ~ Sensor fusion/integration. (2 votes)
    - ~ Higher speed communications (digital).
    - ~ UAV/RPV
2. Future (to be created)
    - ~ Miniaturization
    - ~ New remote sensor tools. (2 votes)
    - ~ New chemical sensors. (2 votes)
    - ~ Real-time radio nuclides – chemical and bio sensors. (3 votes)
    - ~ Standard data management/interface system. (2 votes)
    - ~ Digital intercom
    - ~ In-flight GIS

What ideas do you have on performance measures for OMAO?

Table 1

Mission

1. Support front page of performance standards draft; eliminate page 2.

Aircraft/Personnel

1. Use form, when possible. Periodic debriefs between AOC and programs on a mission basis.
    - ~ Face-to-face preferable.

Table 2

Mission

1. Completion ahead of schedule – should not be a performance measure (beyond control/weather dep).
2. Ratio of supported/non-supported projects.
    - ~ Schedule conflicts.
    - ~ Platform suitability.
    - ~ Logistical restraints.
3. Normalize utilization rates to platform specific “best case” maxima.
4. Breakout “availability rate” to:
    - ~ Weather
    - ~ Maintenance
    - ~ PI input/instruments.
5. Performance measures must reflect nuances of project – meteorology, survey vs. research, etc.

Aircraft/Personnel

1. Ensure feedback on evaluation forms with specific actions or remedies (when appropriate).
2. More subcategories on aircraft evaluation forms.
    - ~ "Personnel" performance broken down to engineering personnel, flight personnel, etc.
    - ~ Logistics/support broken down to engineering, installation, flight operations, etc.

Table 3

Mission

1. Expand aircraft operations evaluation form.
    - ~ Pre-mission
        - Request process?
        - Pre project preparation – coordination.
        - SED support?
        - Project management.
2. OMAO follow-up to solicit evaluations.
3. OMAO request evaluations from base funded programs as well as reimbursable programs.
   Note: Keep routing to OMAO.

Aircraft/Personnel

1. Mission performance – expression of how well the mission met the expectations of the user (PI/CS). Expressed as a % of expectation.
2. Fiscal performance – were invoices (costs) in line with estimates?

Table 4

Mission
1. Mission days lost to unscheduled maintenance.
2. Customer satisfaction score.

Aircraft/Personnel
1. Flight hours.
2. Project days.
3. Flight days.
4. Weather days (too bad or too good – no storms).

Table 5

Mission
1. Flight days. (1.0)
2. Project standby. (1.0)
3. Maintenance scheduled. (1.0)
4. Maintenance unscheduled. (0.0)
5. Inactive (0.0)

~ Flight hours should be tracked.
~ Hours factor not relative for mission performance.
(i.e., 42RF) – flight hours total?
FD+, PS+, MS+, MUS+

Aircraft/Personnel
1. Use current form – follow up on completed form.
2. Forward to AOC Director.
3. Forward to AOC Chair.

Table 6

Mission

1. Safety (AOC).
2. Papers/mission accomplishment (LO).
3. Cost compare.
4. UTIL factor (updated AOC).

Customer Feedback

1. Completed before PI departs from mission collected (in sealed envelop) by AC.
2. Define all parameters equipment (i.e., aircraft specific vs. scientific).
    - ~ Must be under AOC's control.
3. Define reward parameters.

N33RF categories:

- ~ Flight days – 1.0
- ~ Mission ready – 1.0
- ~ Mission capable – 0.0
- ~ Instrumentation – 1.0
- ~ Maintenance scheduled – 1.0
- ~ Maintenance unscheduled – 0.0
- ~ Inactive – 0.0

Expectations of OMAO

Common Themes

- Base funding
- Engineering support
- Streamlining request process and other administrative processes.
- One stop shopping
- Safety
- Personnel
- Flexibility
- Partnership broker

Table 1

1. Safety
2. Suitable platforms.
3. Flexible instrument installation – power, RD-RD, data systems, more hard points.
4. Readily available instrument package – parameters for design (shape, volume, weight, weight distribution, attachment LOC, power and data, I/O ports, etc).
5. Personnel – exchange or expertise, especially for new users.
6. Quick updates on costs.
7. Schedule of reimbursable programs - relates back to base funding need.
    - ~ Don't know customers, let alone their needs 2 years ahead.

Table 2

1. More in-house sci support – base funded (not another added charge).
2. Accessibility via single POC and straightforward process of aircraft support request.
   ~ "Cradle to grave" support per project.
3. If NOAA aircraft is to be used, they must be well maintained and safely operated.

Table 4

1. OMAO needs to drive aircraft needs and promote aircraft assets to Line Offices.
2. OMAO provides safe, effective crewed platforms.
3. OMAO provides expertise in aircraft chartering.
4. OMAO determines best new platform based on long term need.

Table 5

1. Clear guidance and expectations.
2. Quick response to decisions.
3. Partnership based on trust.
4. Leave me alone and let me do my own thing.
5. Insulate from DC politics and bureaucracy.
6. Fight for program needs and provide base support for aircraft.
7. Assist AOC with managing charter operations so that NOAA's platforms are used to the fullest potential.

Table 6

1. Provide base funded engineering support for mods of aircraft to support all missions.
2. Management support of programmatic initiatives that make use of the light aircraft fleet.
3. Establish clear guidance on how to communicate needs and requirements to AOC.
4. Help foster informal relationships with OMAO, AOC and customers.
5. Foster interaction with other agencies.

Overarching Issues and Possible Budget Initiatives

Fundamentals
(for NOAA Administrator/AA's)

6. NOAA Leadership must decide the fundamental, in-house, core aircraft capability that NOAA must have to meet its mission. (What's the line in the sand?)
    - ~ Each Line Office must answer and then integrate.
7. We must then assess the cost of the private sector portion of the work to complement the core mission and core capability.
8. A policy determining whether Line Offices should have dedicated platforms must be made. If a Line Office is willing to pay and fully utilize the platform, should they therefore get exclusive rights?
9. The NOAA strategic planning process must allow for early consideration of infrastructure needs in budgets.
    - ~ Overhead must be built in early on in the strategic planning process.
    - ~ We must connect and package the "how" (infrastructure) with the "what" (program mission needs) at the front end.
10. Ultimately, we must go to base funding for aircraft and get away from the initiatives process (for maintenance, upgrades, replacements). We will never get ahead of the curve if we don't fund platforms out of the base as fundamental to mission support.
11. Safety must be fundamental and is a solid foundation for our core capability. There is, however, a price tag associated with safety. We must be explicit about safety costs as well as mission costs.
12. Regardless of the core capability level we determine, it is clear public/private partnerships are crucial to ultimate performance of mission support.
13. Finally, whatever we do with NOAA platforms, we must ensure flexibility and be ready to adapt to changing conditions, technology and demands.
14. Wherever possible, borrow from other agency's best practices on funding, performance, customer services practices.

Potential Budget Initiatives

1. Standardized, fully equipped capability for end-to-end services for light aircraft.
2. Homeland Security – NOAA and/or National mission support.
3. Twin Otter
4. Disaster/emergency rapid response – NOAA and/or National mission support.
5. Enforcement
15. Regionally based aircraft support.
    - ~ West Coast/Alaska
    - ~ Hawaii
7. Ocean Exploration

Overlays for any/all Initiatives

1. Partnerships – public and private.
2. Cross Line Office demand/support.
3. Safety
4. Skilled workforce.
5. Flexibility/adaptability to changing demands and technology.

Budget Initiative (2004)

Title:

Brief Description:

Benefits to NOAA: (Specifics)

NOAA Advocate(s):