NOAA WP-3 SENEX 2013
Integration at MacDill

http://esrl.noaa.gov/csd/projects/senex/

- Payload
- Schedule
- Inlets, exhausts, power, weights, Ethernet
- Shipping
- Working at MacDill
5 Operator seats:
NO$_2$O$_3$: C3X
CRDS: Sta. 2
SP2/AMS: Sta. 3
CIMS: Galley rotating: Galley

Non CSD collaborators
CCN: Nenes
HCHO: Hanisco/Keutsch
Acid CIMS: Thornton

2-page instrument descriptions available on the website
Integration Schedule for ~115 flight hours 6 weeks

**APRIL 2013**

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**Shipping:** April 19, 2013

**NOTES:**

- **Already done:** exhaust, LTI, BF venturi, ship feet and windows
- **April 19:** truck to Tampa
- **April 22-26:** Sta 2, Sta 8, WLOPC, AMPS pod
- **April 29–May 2:** Sta 7+LIPF, StaC3X, Sta 6a, Fli Sci
# Integration Schedule for ~115 flight hours 6 weeks

## MAY 2013

## SENEX INTEGRATION SCHEDULE V6

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## NOTES:

- **May 6-10:** Sta 3, Sta 5, CO pod, CCN, j-heads
- **May 13-17:** Sta 4, Sta 6b, Dual Pass
- **May 20-24:** AOC prep
- **May 28-30:** Power checks and science test flight
Integration Schedule for ~115 flight hours 6 weeks

**JUNE 2013**

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**NOTES:**

**June 1-2:** access days  
**June 3:** Transit to Nashville
## Integration Schedule for ~115 flight hours 6 weeks

### JULY 2013

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### NOTES:
- **July 15:** transit to Tampa
- **July 16-17:** de-integration
- **July 19:** truck to Boulder
- **July 22:** unload truck go to the Rio
Integration Schedule for ~115 flight hours 6 weeks

- 30 people going to Tampa
- Please make your travel arrangements accordingly and be flexible
- Try to consolidate rental cars
- In Tampa Springhill Suites (or Chase Suites)

Springhill Suites
4835 West Cypress St
Tampa FL US 33607

- Jane August on vacation first two weeks of June
- After travel for Tampa is set:
  arrange for deployment travel: Tampa/Smyrna/Tampa
Installation of Inlet, Exhaust, Power, Weights and Ethernet

C3X:
1 inlet
NOy-03
1 large viewport

Sta. 5:
2 inlets
SO2, CO2
acid-CIMS
2 small viewports

Sta. 6:
1 inlet
ACES
1 large viewport

Sta. 7:
2 inlets
NH3, HNO3
2 small viewports

SO2
CO2, CH4
acid CIMS glyoxal
HNO3, NH3 CIMS

Sta. 8:
1 inlet
PAN CIMS

ARNO LDL
NO3, N2O5

PTRMS VOCs
ISAF HCHO

<- FD:
1 inlet
LTI
1 small viewport

Sta. 2:
standard bubble window

Sta. 3:
1 inlet
PANS
1 large viewport

CO pod

Dual Pass:
1 inlet
ARNOLD
1 small viewport

Camera port:
1 inlet
PTRMS, ISAF
Installation of Inlet, Exhaust, Power, Weights and Ethernet

N42RF exhaust plumbing layout
version 3, 4/3/2013

Black: stainless steel
Blue: PFA Teflon
Red: Silicone

NO call line:
1/16" x 0.030" SS tubing
1/16" union termination (sidewall, FS 498)

C3X ground and exhaust ports:
1/8" SS swage bulkhead (Q2)
3/8" SS swage bulkhead (Z3)
3/8" SS swage bulkhead (WECF, fwd, FS 514)

Dual Pass, exhaust ports:
1/2" Gates PFA elbow bulkhead (sidewall, FS 787)

Sta. 6, exhaust ports:
3/8" Chemfluor PFA elbow bulkhead
(sidewall, FS 860)

Sta. 7, exhaust ports:
1/2" Gates PFA elbow bulkhead
(sidewall, FS 832–836)

Note: Gates has integral ferrule
Chemfluor has separate single teflon ferrule
Installation of Inlet, Exhaust, Power, Weights and Ethernet

Weights
- Total of our equipment: 7777 lbs
- All new heavy installations have been cleared with AOC structural engineer
- Let me know about the final weights for individual instruments
- Rack feet should be already installed, when we arrive

Exhaust
- N42RF exhaust and LTI installed March 2013
- Thanks Andy Neuman and Chuck Brock

Inlet
- Window plates already send (except C3X)
- Window plates should be already installed, when we arrive (LTI and Sta 8 are done)

Rack installation
- Heavy racks to the front (and back) of the plane as light as possible for install
Installation: Inlet, Exhaust, Power, Weights and Ethernet

Power
- 400 Hz: 170 A, 60 Hz: 42 A, 28 V: 52 A, 3-phase: 41 A
- Cables for each rack are being installed already
- Let me know, if there are any changes to the power requirements

Ethernet/data streams
- Every station gets at least one cable
- Serial cable only for Flight Science computer
- Computer available in galley for data and x-chat
- If you read in aircraft data in flight (UDP), contact Ken Aikin for changes
- If you want your data in the live data download, contact Ken Aikin

Weekly plan
- Discuss with each PI the individual installation
- Relay a weekly installation plan to AOC
If there are any questions left about any of these items, they need to be addressed immediately.
Shipping Boulder to Tampa and Nashville

Boulder to Tampa April 19:
- Landstar truck from Boulder to Tampa (thanks George Angel)
- Ship gas bottles for Tampa from here
- Need to know what gas bottles go on the truck by next Monday
- Flatbed with Amps pod to Tampa likely April 15 (anything else on this truck?)

Boulder to Nashville and Tampa to Nashville:
- Truck size for shipping from Boulder to Nashville and Tampa to Nashville
- Need volunteer for arranging gas bottles order to Nashville
Access to the Air Force Base:
- CAC card should get you through the gate
- All Non-CAC card holders need to go to the visitors center with an ID: drivers license for US citizen and passport for foreign nationals
- Paperwork should be there
- Foreign Nationals need to fill out Appendix C at AOC
- Our federal employee are escort for foreign nationals at AOC
  (Brock, Ryerson, Middlebrook, Brown, Roberts)
Tool and FOD Control Policy (**important to follow the rules**):
- Review Official policy documents from AOC:
- Mark Rodgers at AOC is Tool Control and Safety Sponsor for SENEX
- **don’t bring your own tools into the hangar**
- Tools are available from AOC in Hangar (with key) and office/lab (with chits)
- Specialty tools bring in shadow box with inventory and signed off EVERY day
- **Foreign Object Damage/Debris Prevention Program**
- Check for fasteners/screws
- Careful with loose objects
- Clean up after yourself
POLICY 209-2
FOREIGN OBJECT DAMAGE (FOD)/DEBRIS PREVENTION PROGRAM

SECTION 1. PURPOSE
1.01 This Foreign Object Damage/Debris (FOD) Prevention Program establishes policy, responsibilities, and requirements to prevent damage to aircraft, engines, scientific equipment and other aeronautical equipment, and provides for a uniform FOD prevention procedure.

SECTION 2. SCOPE
2.01 An effective FOD Prevention Program, which identifies, corrects, and eliminates causal factors is everybody’s responsibility, and must be part of the safety culture at AOC.

2.02 FOD prevention training is a continual effort to increase the awareness of the cause and effects of FOD, and to promote active employee participation in FOD elimination. A successful program requires a concentrated effort by all assigned personnel and contractors in preventing FOD and FOD-related occurrences.

2.03 “FOD Walks”, typically weekly, should be performed as required in both the hangar and flight line areas. Spot checks should be performed whenever it is deemed necessary due to unusual activity on the ramp and in the hangar (maintenance, air show, transient aircraft, etc). FOD is a common concern. When FOD walks are announced, all available personnel are expected to assist.

SECTION 3. RESPONSIBILITIES
3.01 The Production Controller/Assistant or Designee shall:
Ensure all personnel adhere to this procedure and has responsibility for the overall program requirements. The production controller may delegate to subordinates, but maintains overall responsibility and accountability.

POLICY 221-13
TOOL CONTROL AND ACCOUNTABILITY POLICY

SECTION 1. PURPOSE
1.01 The primary objective of a tool control policy is to substantially reduce or eliminate aircraft accidents or incidents, including possible loss of life or damage to equipment, caused by the improper accountability of tools. This policy establishes Aircraft Operations Center (AOC) procedures for the control and accountability of tools, consumables, miscellaneous parts, in, on, and around Hangar 5, MacDill Air Force Base, Florida, deployed NOAA aircraft, and pre-positioned NOAA aircraft, i.e. Snow Survey, Remote Sensing Division, West Coast Otter Operations.

SECTION 2. DEFINITIONS AND ACRONYMS
- AMB Aviation Maintenance Branch.
- AOC Aircraft Operations Center
- Consumables Expendable supplies not conducive to one of the marking methods in Section 4.01. Examples include: issued work apparel, glue, paint, sealant, rags, sandpaper, brushes, applicators, etc.
- FOD Foreign Object Damage.
- Miscellaneous Parts Supplies frequently used that are not conducive to one of the marking methods in Section 4.01. Examples include: rivets, washers, fasteners, drill bits, apex tips, wire, mechanical pencils, pens, etc.
- NOAA National Oceanic and Atmospheric Administration.
- PMEL/Calibrated Tool Monitor The individual designated to monitor the serviceability, calibration, and accountability of Precision Measuring Equipment Laboratory/Calibrated Tools.
Working at MacDill AFB NOAA AOC Hangar

Internet access:
- Fill out these forms by coming Monday:
  http://esrl.noaa.gov/csd/groups/csd7/measurements/2013senex/P3/integration/policies/
NOAA2306 Access Agreement CHECKLIST – (for people)
NON NOAA2306 Equipment CONNECTION CHECKLIST — (for machines)
- Send to Sean McMillan: sean.t.mcmillan@noaa.gov well before going to Tampa
- Possible wireless access

Safety shoes:
- Safety shoes are required in and around aircraft (Smyrna as well)

Aviation Safety training for flying:
- Online course for NOAA/CIRES (e-learning center)
  http://esrl.noaa.gov/csd/groups/csd7/measurements/2013senex/P3/integration/policies/
- Non-NOAA people need to do it at MacDill or Smyrna (with a NOAA person)
- Without water survival training three over-water flights possible per person
- For further details: watch for email from Joost
Working at MacDill AFB NOAA AOC Hangar

HazMat:
- All HazMat is in the AOC system (not needed for AF MacDill system)
- Bring your own bottle carts (or make sure you know which one you can use)
- Proper personal protection equipment (PPE)
- Radioactive sources (contact Ann Middlebrook)
- MacDill’s Fire and Rescue dept has to come by and observe install (May 16-17)
- Gas bottles and UPS need current certification

Safety brief:
- Every Monday for each group

Early start:
- Usually 7AM ET

Driving:
- Always have your badge with you
- No talking on cell phone
- Don’t exceed speed limit
- Turn head lights off and take off sun glasses at gate
http://esrl.noaa.gov/csd/projects/senex/

Shipping date: April 19, 2013
(2 weeks from today)

To Do for the 30 people going to Tampa:
• Arrange travel for Tampa
• Read AOC policy forms
• Get safety shoes
• Get ready and plan for shipping

To Do by Monday April 8:
• How many gas bottles on the truck (weight and size)
• Fill out internet access form