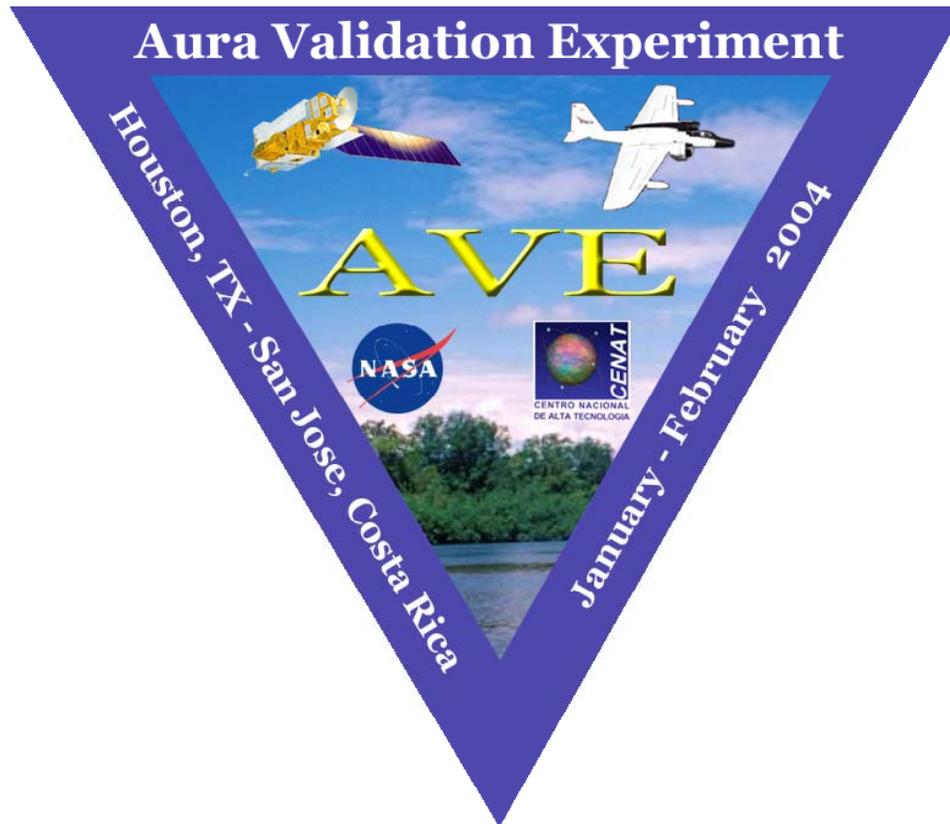




# Pre-Aura Validation Experiment

## Mission Planning Update



Michael T. Gaunce  
NASA ESPO  
December 9, 2003



# Presentation Overview

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- Houston details
- Costa Rica details
- Other info
- Deployment schedule



# Ellington Field Houston, TX

January 12-24



# Hotel

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- Two Hotel Blocks in Houston
  - Marriott Residence Inn, 525 Bay Area Boulevard, Clear Lake, Phone 281-486-2424
    - Rate is \$87.00 per night, plus tax for a studio suite.
    - Rate includes a complimentary hot breakfast buffet and evening hospitality hour (Mon-Thurs).
  - TownePlace Suites, 1050 Bay Area Boulevard, Clear Lake, Phone 281-286-2132
    - Rate is \$64.00 per night, plus tax for a studio suite.
    - Rate includes a 'Grab-and-Go' breakfast.
- The cut-off date for making reservations is 12-10-2003.
- See K. Thompson e-mail of 11-13-03 for details.
  - Note special rates & restrictions for Super Bowl weekend (Feb 1).



# Transportation

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- Rental Cars
  - Each team/person makes own reservation.
    - Enterprise available at Ellington Field.
- Will coordinate transport upon C-5 departure and return.



# Security and Access

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- **Badging**
  - Badges must be displayed at all times at airport.
  - Badges available:
    - At Entry Gate (south end of field) weekdays.
    - At B-110 (on-site JSC) weekends.
  - All foreign nationals required advance approval for badging.
- **Access**
  - Combination lock gate - access to hangar/labs



# Hangar and Lab Description

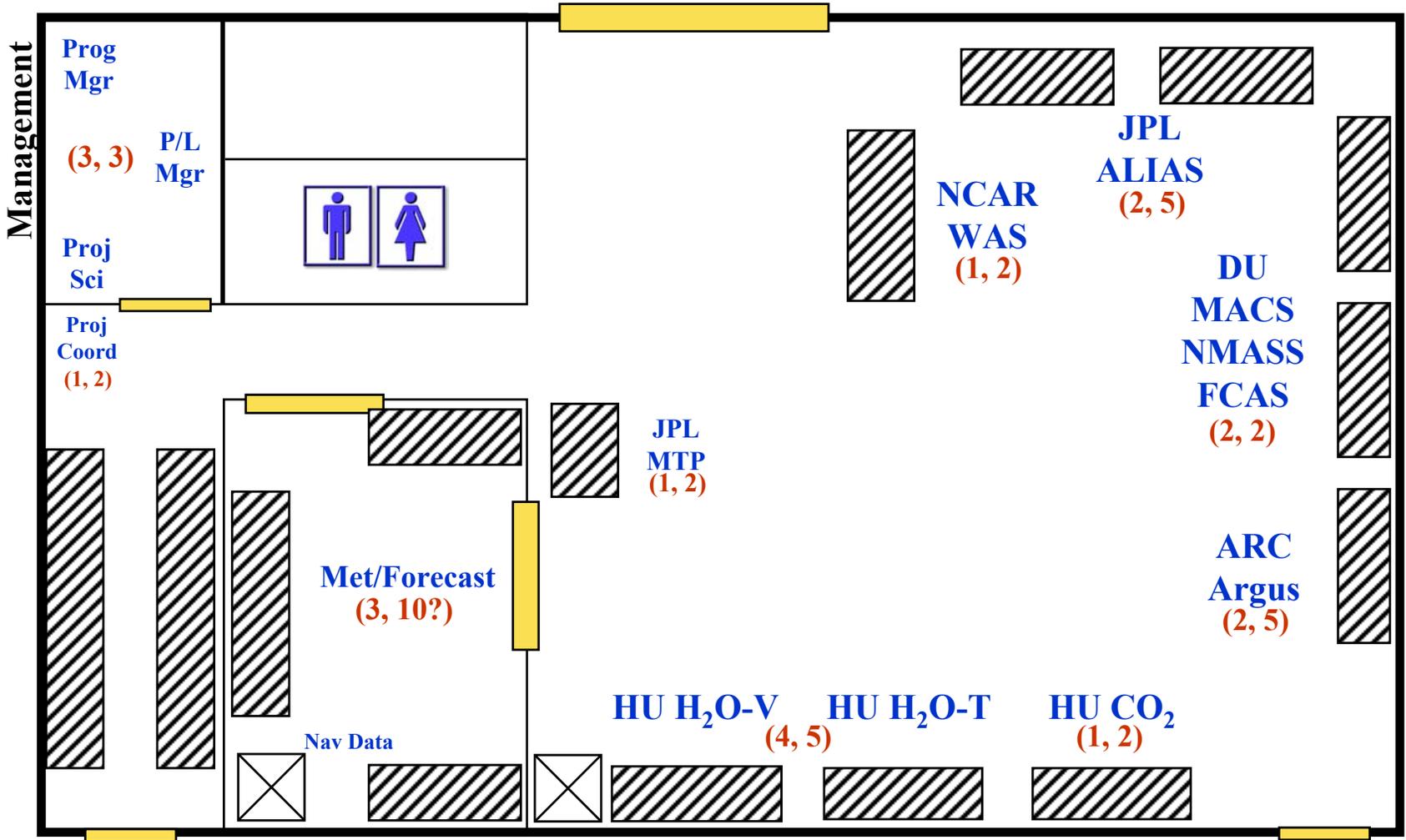
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- Layout - See next slide.
- Network
  - For B-994 (Unsecure)
    - Labs have T-1 line (outside JSC firewall).
  - For B-993 and B-990 (Secure)
    - Behind JSC firewall.
  - Static IPs to be provided.
  - Administration provided by JSC and ESPO.



# AVE Lab Layout - Houston, TX

## Bldg 994



(# tables, # connections)

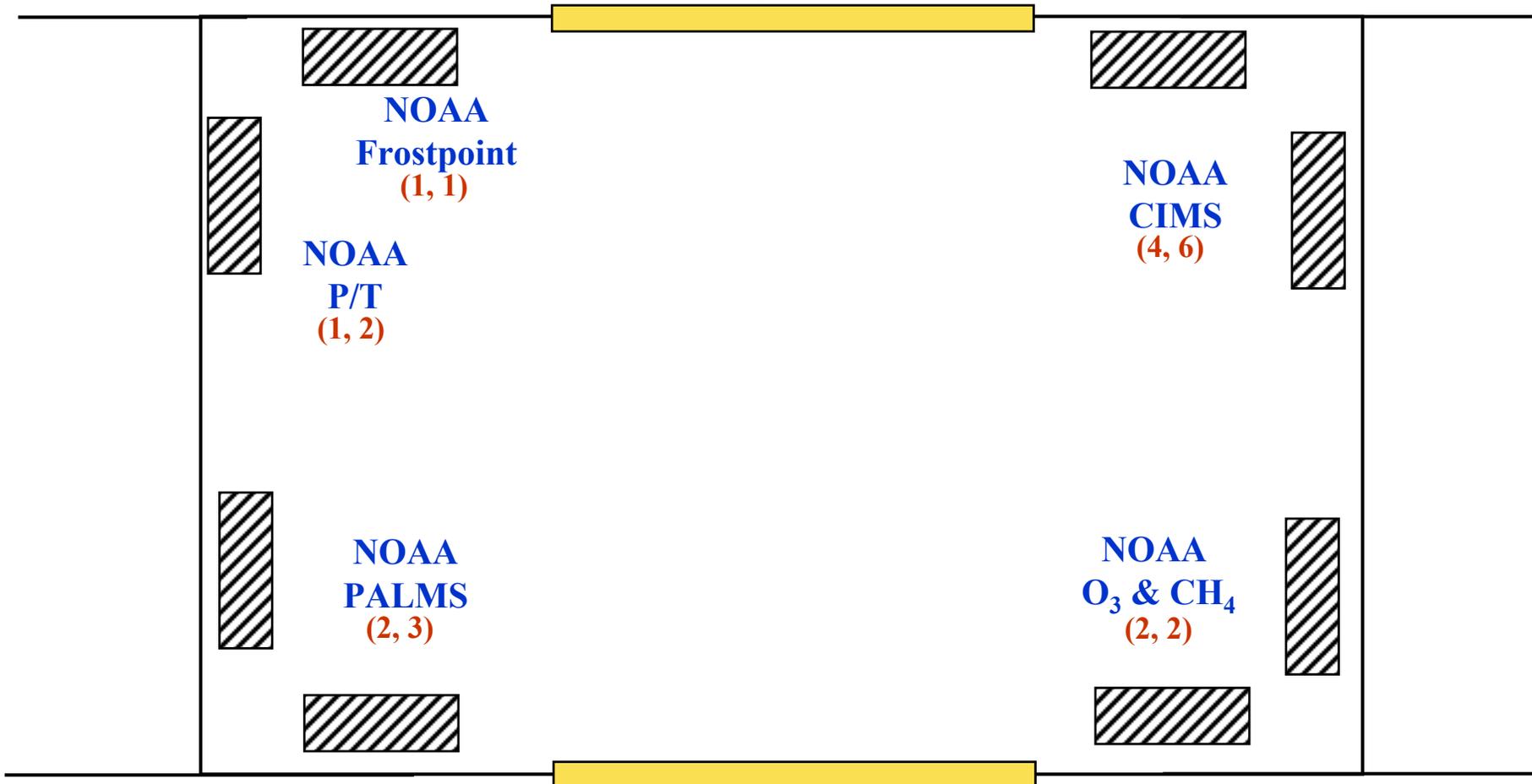


# *AVE Lab Layout - Houston, TX*

## *Bldg 990 - Rm 110*



Hangar Floor

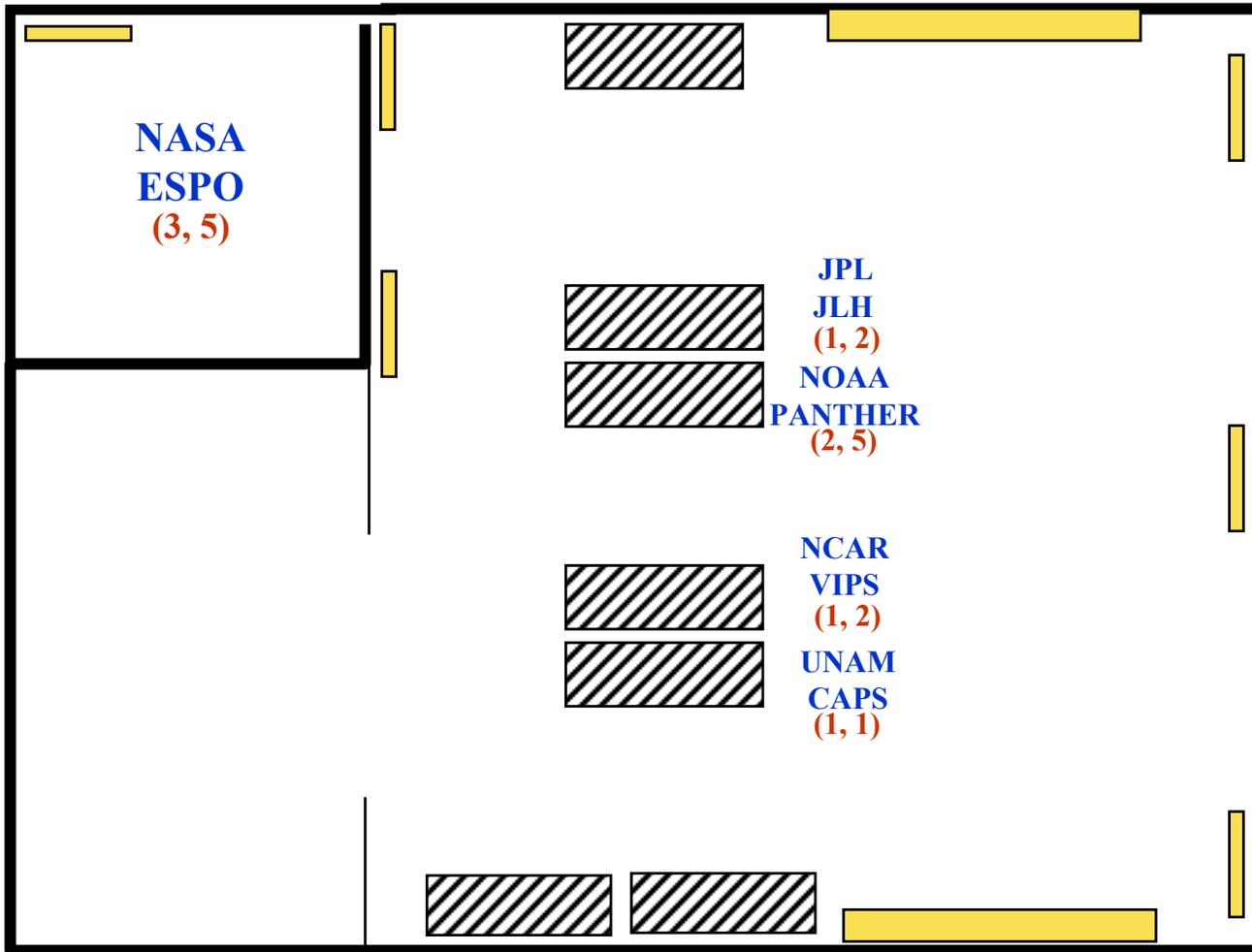


(# tables, # connections)



# *AVE Lab Layout - Houston, TX*

## *Bldg 993*



**(# tables, # connections)**



# **Juan Santamaria Airport San Jose, Costa Rica**

January 24- February 1

# Hotel

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- Costa Rica Marriott, San Antonio de Belen
  - Phone: 506-298-0000
  - Cut-off date for reservations has passed. Further reservations are space available basis.
  - Breakfast buffet is \$15, available 6-10 am. Grab-n-go can be ordered for \$10.
  - In-room DSL available for around \$10/day.





# Transportation

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- Rental Cars
  - Special rates negotiated with:
    - Alamo - Phone 011-506-242-7731, Fax 011-506-290-0431
      - For a Toyota Echo (or similar) - 4 door, AC, stick shift; \$37.80/day or \$226.80/week
      - Website: <http://www.alamocostarica.com>
    - Hertz - Phone 011-506-221-1818, Fax 011-506-233-7254
      - For a Toyota Yaris - 4 doors, AC, stick shift; \$39.00/day or \$205.00/week
      - Website: <http://www.costaricarentacar.net>
  - Insurance strongly recommended (CDW at a minimum).
    - Be sure to read the fine print!
- “ESPO” Shuttle Bus
  - Transfer from Hotel to Airport from 5 am to 5 pm.
    - Transport for lunch to nearby town of Alajuela.
  - Transfer from Hotel to Downtown in the evening.



# Passport and Customs

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- Upon arrival on C-5, all passports will be collected and stamped for entry.
- No customs declaration (diplomatic).
- Upon departure on C-5, all passports will be collected and stamped for exit.
  - For personal (blue) passports, \$26 departure tax **required** when passport is collected.
- Foreign nationals:
  - Need to arrive to CR on commercial carrier.
  - Need to check visa requirements for Costa Rica.



# Security & Access

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- Badging
  - Badges must be displayed at all times at airport.
  - Badges provided upon arrival (Jan 24).
- Keys will be provided for lab and hangar access (1 per instrument team).
- Personnel access only to hangar and entry area behind hangar.
  - Non-essential personnel restricted from ramp.
- Photography is OK in/around hangar.



# Crime & Safety

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- Petty theft and carjackings are commonplace.
- DOs:
  - Do keep car locked and valuables out of sight at all times.
  - Do use in-room safes. Carry minimum cash.
  - Do let project office and embassy personnel know of accidents.
- DON'Ts:
  - Do not go out alone, especially at night.
  - Do not stop for flat tires. Keep driving to safe place (hotel, police station, etc.)
  - Do not move car from the road in an accident (wait for police).

# Hangar and Lab Description

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- Layout - See next slide.
  - Note: Lab space is **very** limited. PIs will need to work within allocated space.
- Network (Unsecure)
  - Labs have 2 MB/sec (E-1 line).
  - Static IPs to be provided.
  - Administration provided by AF Reserve unit.
- Power: 125V, 60 Hz







# Other Misc Information

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- Other Costa Rica Tips
  - U.S. cell phones won't work in Costa Rica. Can be rented locally.
  - Conversion rate as of 12-5-03 is 415 colones to the U.S. dollar.
  - Street names. In general, there are no road or street names in Costa Rica. Directions are given in terms of location with respect to local landmarks or known points (i.e., the hotel is 2 km west of the factory, south of airport).
  - Parking. Parking "attendants" are on the street nearly everywhere you go. It is customary to give these attendants 100 colones or so (when you return) for watching your car.
- Phone lists and orientation packages provided in Houston and CR.
- Deployment site data archive will be set-up in Houston and CR.
  - See S. Gaines e-mail of 12-2-03 for details.
- Will need passport numbers and expiration dates (plus copies) for all mission personnel. Also need to confirm C-5 manifest.
- Mission web site: <http://www.espo.nasa.gov/ave/index.cgi>



# Deployment Schedule

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Jan 7 (W)	8 am	Houston Lab set-up begins
Jan 12 (M)	8 am	Begin integration for wing pods & wing hatch instruments
	4 pm	Houston Orientation All-Hands
Jan 13 (T)	8 am	Begin integration for fuselage
Jan 16 (F)	?	Test flight
Jan 18 (S)	?	1st science flight going north
Jan 20 (T)	?	2nd science flight going north
Jan 22 (T)	8 am	CR Lab set-up begins
Jan 23 (F)	9 am	Pack Labs & Load Pallets
Jan 24 (S)	9 am	Flight to San Jose, CR
		WB-57: Dep 9 am, Arr 12 pm
		C-5: Dep 10:30 am, Arr 1:30 pm
	4 pm	Costa Rica Orientation All-Hands
Jan 26 (M)	6 am	1st Equator flight
Jan 28 (W)	6 am	2nd Equator flight
Jan 30 (F)	6 am	3rd Equator flight
Jan 31 (S)	9 am	Pack Labs & Load Pallets
Feb 01 (S)	9 am	Return to Ellington
		WB-57: Dep 9 am, Arr 12 pm
		C-5: Dep 10:30 am, Arr 1:30 pm

Nominal flight times. Nominal flight duration: 5-6 hours



# Back-up Charts



# Pre-AVE-Jan 2004

## Key Personnel

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Don Anderson	Program Manager	NASA HQ
Mike Kurylo	Program Manager	NASA HQ
Phil DeCola	Program Manager	NASA HQ
Paul Newman	Co-Project Scientist	NASA GSFC
David Fahey	Co-Project Scientist	NOAA AL
Mike Gaunce	Project Manager	NASA Ames
Michael Craig	Co-Project Manager	NASA Ames
Marty Ross	Payload Manager	Aerospace Corp
Bud Meins	WB-57 Deployment Mgr	NASA JSC
Shelley Baccus	WB-57 Instrument Mgr	NASA JSC
Kathy Thompson	Project Coordinator	CSC
Quincy Allison	Logistics & Network	NASA Ames
Steve Gaines	Data Manager	NASA Ames
Greg Klinedinst	Web Administrator	NASA Ames



# Pre-AVE Mission Summary

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- Platform: NASA WB-57F
- Pre-AVE flight series in Jan 2004
  - 3 mid-latitude flights
  - 2 transit flights
  - 3 tropical flights (Jan 24-Feb 1)
- Objectives:
  - Observed transport from tropical troposphere into the stratosphere
  - Characterize the Tropical Tropopause Layer (TTL)
  - Explore seasonal characteristics of strat-trop exchange.

# Operational Region



# AVE Platform



## WB-57F

Payload:	6000 lbs. 4 pallets, 2 pods, wing hatches
Range:	2400 km
Ceiling:	19 km
Alt. range:	2-62 kft (~ 1-19 km)
Airspeed:	185 m/s (@19 km)
Endurance:	6.5 hours
Crew:	Pilot & payload operator



# Pre-AVE January 2004 payload

## Left Wing Pod

MTP, H<sub>2</sub>O  
vapor,  
CAPS

## Nose

PALMS, PT

## Pallet 1

CO<sub>2</sub>, total H<sub>2</sub>O

## Pallet 2

Argus, FCAS, MACS, NMASS

## Pallet 3

CIMS (HCl, HNO<sub>3</sub>),  
CH<sub>4</sub>, O<sub>3</sub>

## Pallet 4

WAS

## Left Wing Hatches

Frost point, VIPS

## Upper Equip Bay

## Aft Transition

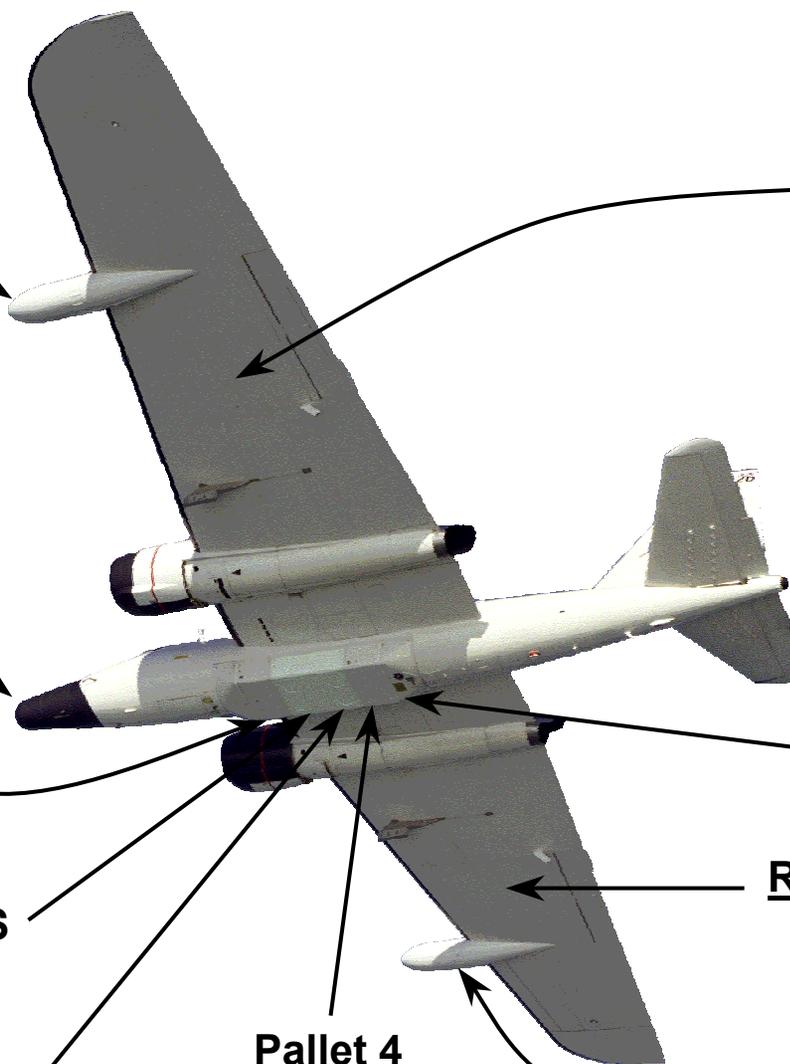
PANTHER

## Right Wing Hatches

JLH

## Right Wing Pod

ALIAS



# WB-57F Pallets



# WB-57F Nose & Wing Pods

