

TC4 - Tropical Composition, Cloud & Climate Coupling Mission

Mission Planning Update



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NASA ESPO
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Presentation Overview

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- Deployment Site Update & General Information
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Website: <http://www.espo.nasa.gov/TC4>

Current Mission Schedule

June 2007

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Notes:					1 ESPO & ER2 FUEL SHIPMENT	2
			DC-8 Integration			
3	4	5	6	7	8	9
DC-8 Integration						
10	11	12	13	14	15	16
DC-8 Integration						
17	18	19	20	21	22	23
Panama Set up						
DC-8 Integration & Lidar calibrations						
ER-2 Integration & Test Flights						
24	25	26	27	28	ESPO EQUIP & ER2 FUEL in CR	30
Panama Set up						
DC-8 Integration & Lidar calibrations				DC-8 Test Flight 1		DC-8 Test Flight 2
ER-2 Integration & Test Flights						

Current Mission Schedule

July 2007

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 ESPO to CR	2 Panama Ops Start DC-8 Test Flight 3	3 	4	5	6	7
ER-2 Integration				ER-2 Test Flight		
WB-57 Integration						WB-57 Test Flight
8 ER-2 Test Flight	9 	10	11 DC-8 Pls to McC	12	13 DC-8 Transit Transit PAX at DFRC	14
DC-8 Load Trucks	DC-8 Trucks to DFRC	DC-8 Pallet Build		C-5 to DFRC;load	C-5 to CR; unload	C-5 to TX;load
WB-57 Test Flight		WB-57 Pack		WB-57 Pallet Build		
ER-2 Pack		ER-2 Pallet Build				
15 ER-2 Transit WB-57 Transit	16	17	18	19	20	21
C-5 CR; unload	C-5 departs CR					
22	23	24	25	26	27	28
29	30	31				

Current Mission Schedule

August 2007

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
Notes:			1	2	3	4	
5	6	7	8 Panama Ops Stop	9	10 WB-57 Transit	11 ER-2 Transit	
			DC-8 Pack	DC-8 Pallet Build	DC-8 Transit		
				WB-57 Pack	WB-57 Pallet Build		
			ER-2 Pack	ER-2 Pallet Build	C-5L to CR		
12	13 All Unpack	14	15	16	17	18	
	DC-8 Pack Trucks		DC-8 Trucks to McC	DC-8 Trucks Unpack			DC-8 Pls Pack Equipment
	C-5L Load-TX		C-5L unload & depart	ESPO & ER2 SHIPMENT			
C-5T unload; depart							
19	20	21	22	23	24	25	
26	27	28	29		31		

Integration



WB-57 - Integration at Ellington Field, TX

Integration Lead: Shelly Baccus

ESPO - Mike Craig & Marilyn Vasques

ER-2 - Integration at Dryden, CA

Integration Lead: Mike Kapitzke

ESPO - Mike Gaunce (will be in Panama/Costa Rica) & Sue Tolley

DC-8 - Integration at McClellan, CA

Integration Lead: Rick Shetter

ESPO - Kent Shiffer & Dan Chirica

Ship all compressed gas bottles for Costa Rica to McClellan **not** DFRC

- Clearly label with Aircraft *(DC-8), PI and Instrument name*

Network connection at McClellan (Wireless) and Wired ~3Mbps

MSDSs required for all gases and chemicals at all sites

Integration

Tracking Status for Project Scientists

Legend:

	<70%	>70%
Major	R	Y
Minor	Y	GY
None	GY	G

R: Major Problem (Hard failure, No fix identified, mission impacted, less than 70% Science Quality Data Collected)

Y: Major Problem (Hard failure, (ie collected nearly all data but laser burnt out), greater than 70% Science Quality Data Collected)

Y: Minor Problem (late integration, fail light), Problem identified/ no mission impact, less than 70% Science Quality Data Collected)

GY: Minor Problem (late integration, fail light), Problem identified/ no mission impact, greater than 70% Science Quality Data Collected)

GY: No Problem (ie backseater failed to flip switch), Problem identified/ no mission impact, less than 70% Science Quality Data Collected)

G: No Problem (worked well, no identified problems, full data set)

PI Requirements Summary

- A request went out 4/11/07 requesting PI input to the ESPO PI requirements website by 4/18.
 - Received many responses from PI/Instrument groups but not all.
 - Can't meet the desired number of spaces.
 - URLs & Instrument descriptions.
- If you have additional support requirements (e.g., IT, shipping), please let ESPO know ASAP.

Deployment Site Update



Conducted 2 site visits to Costa Rica

- Costa Rican government has deemed this mission an activity of national importance.
- Met with several organizations that all offer support.

Costa Rican collaborators include the Centro Nacional de Alta Tecnologia, Direccion General Aviacion Civil, Servicio de Vigilancia Aerea, Alterra, Instituto Meteorologica Nacional and the US Embassy, Costa Rica.

Deployment Site Update



Space in Costa Rica will be very tight. There will be limited instrument repair space. Plan to share.

WB-57

- Clamshell hangar is to be repaired and operational by 5/23.
- Lab space, suit room & storage for LOX will be similar to previous missions.

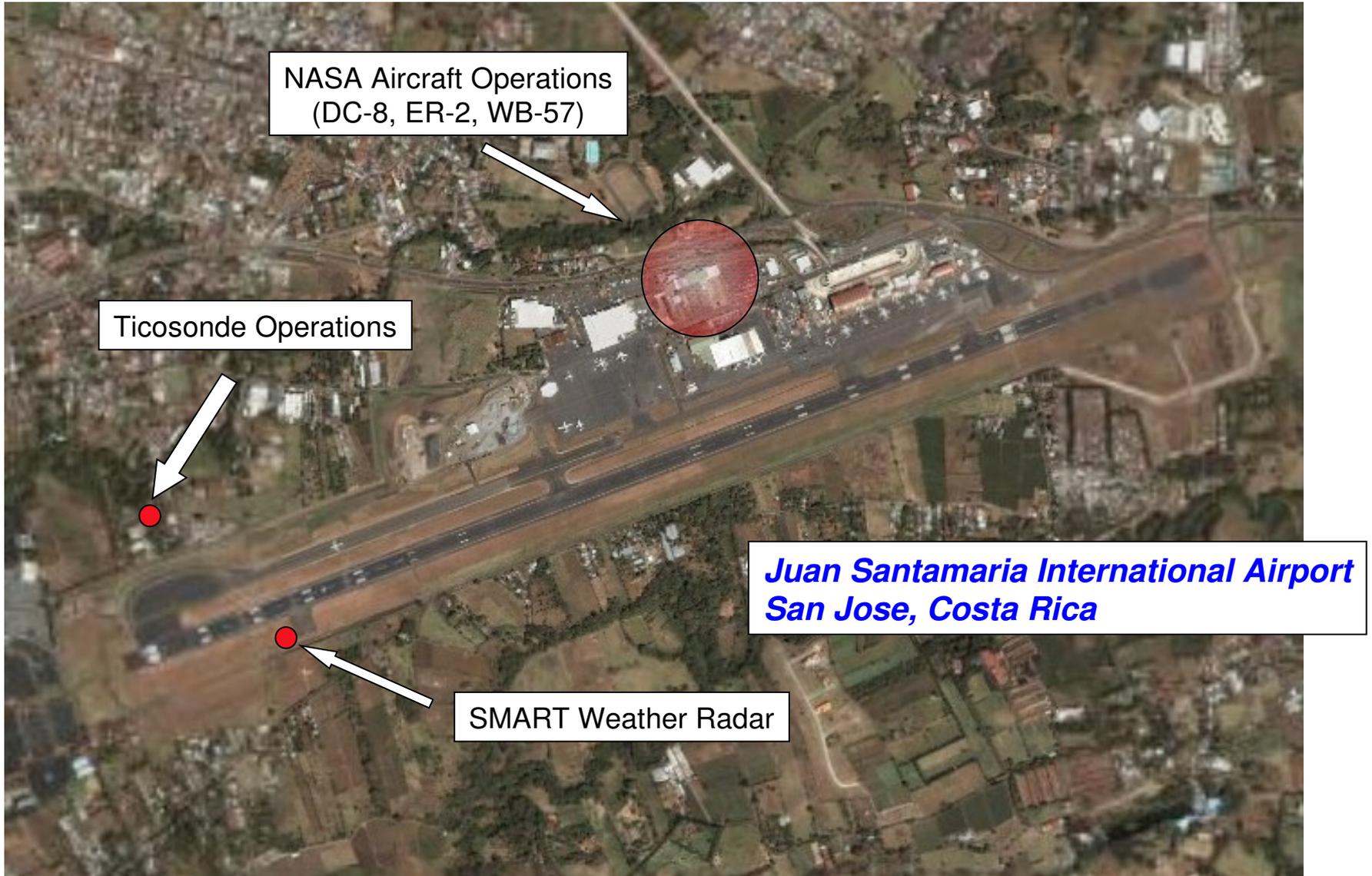
ER-2

- Hangar space will be in Presidential hangar. Modifications to upstairs rooms (offices) & downstairs lab and suit room will be required. LOX will be stored nearby.

DC-8

- Will park on ramp. Working on getting dedicated parking space.
- Labs/offices will be in the Club. Modifications to Club will be required.

Deployment Site Update



Deployment Site Update

**NASA Aircraft Operations
(DC-8, ER-2, WB-57)**



General Information

Costa Rica



- Visas: Not required for US visitors. Other nationalities, check with your Embassy. Non government personnel will have to pay \$28 departure fee (may be able to get it waived. Stay tuned.)
- Telecommunications: SIM cards will not be available however phones and internet are available.
- Time: Costa Rica standard time is GMT -6 hours.
- Power: 110 V, 60 Hz.
- USG Per diem: \$118/\$78 M&IE
- Personal Safety.

Travel & Logistics

Air Lifts

- 2) Houston to Costa Rica (WB-57)
- 3) Dryden to Costa Rica (DC-8 & ER-2)

Passengers on Airlifts

No foreign nationals

No food provided

Schedules are uncertain



C-5 schedules will impact mission schedule so stay tuned to ESPO website.

ESPO will be at departure and arrival

Bring passports and we will get them stamped for immigration. A bus will take passengers to rental cars or hotels

Personnel: Sue Tolley will work manifest for Dryden Airlift and Mike Craig will work manifest for Houston.

Travel & Logistics

- Air travel.
 - Commercial Air - most major airlines.
- Health and Safety
 - Recommend you buy bottled water. The sun is hot and humidity is high.
 - Take whatever prescription and OTC medications you might need with you.
 - ESPO will be contracting emergency services for health care and have a large first aid kit.
 - U.S. State Department Consular Information Sheets:
 - <http://travel.state.gov/>

Lab Description & Support

- Lab Space
 - Layouts to be provided via ESPO website in about 2 weeks.
 - Labs have 3.0 MB minimum shared connection.
 - Ethernet connection plus wireless.
 - DHCP or fixed IP to be provided (details still in work).
 - Please be sure to have virus protection software on your computer.
- In-field data archive provided by ESPO.

Security & Access

- Badging
 - Badging required for secure area, lab and ramp access.
 - Badges will be issued for the length of your stay.
 - Kathy Thompson collecting required info for badge request.
 - Security/safety briefing required upon arrival.
 - Badges must be displayed.
- 24/7 access.
 - Costa Rica lab keys will be handed out by Kathy. 1 per team.
- Reflective vest required while on ramp.
- Car passes will be required for parking at the airport. 1 per team.

Shipping

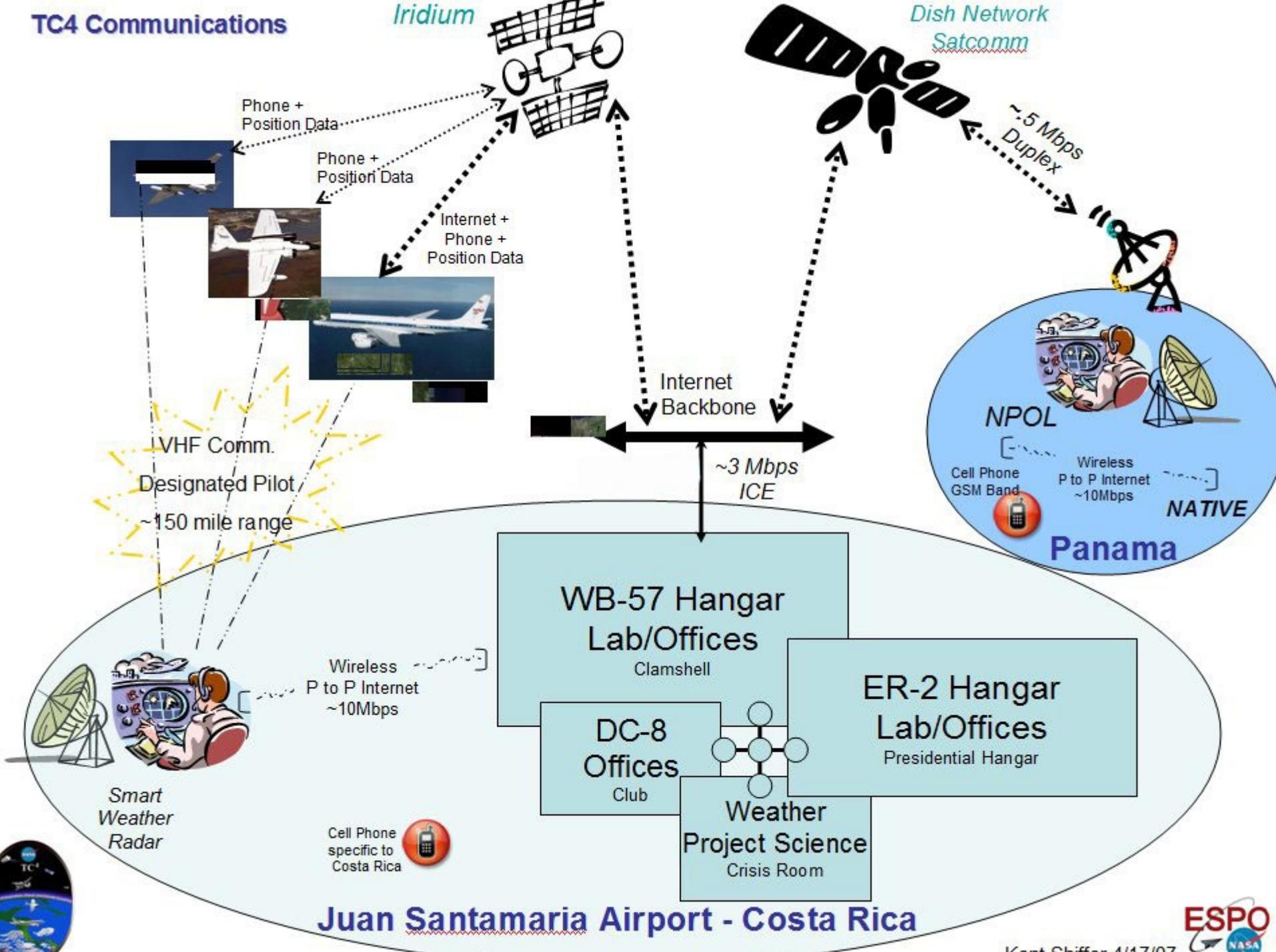
- All PI provided gases and chemicals that need to be shipped will require MSDSs.
- ESPO will provide standard gases (see PI Requirements Input).
- Cryogenics will be available as requested in the PI Requirements Input.
- ESPO will transport the DC-8 & ER-2 instrument & aircraft support equipment from DFRC to deployment site via airlift and will return the equipment to DFRC at the end of the project.
 - ESPO will handle truck shipment from Sacramento to DFRC.
- ESPO will ship WB-57 instrument & aircraft support equipment from Ellington to deployment site via airlift and will return the equipment to Ellington at the end of the project.
- Shipping into the country will require documentation for temporary importation with tax exoneration.
- Shipping plans will be based on PI Requirements inputs. If any changes, please contact Quincy Allison.

Communications

- Meetings & Briefings
 - On science flight days: Pre-flight briefing.
 - On non-flight days:
 - Flight Planning team meetings
 - Science team meetings
 - No major conference room. Briefings in hangars and major meetings in Melia Hotel conference room.
- Public Affairs, Education, and Outreach
 - Press release & info in work.
 - Tours for locals.
 - TC4 mission web site.
 - Videographers
 - Inauguration
 - Press event at airport
- In the field.....
 - Kathy will collect contact information at deployment site.
 - Phone lists provided after site arrival.
 - News, schedules, & activities posted in designated office areas and the TC4 web site.

Communications

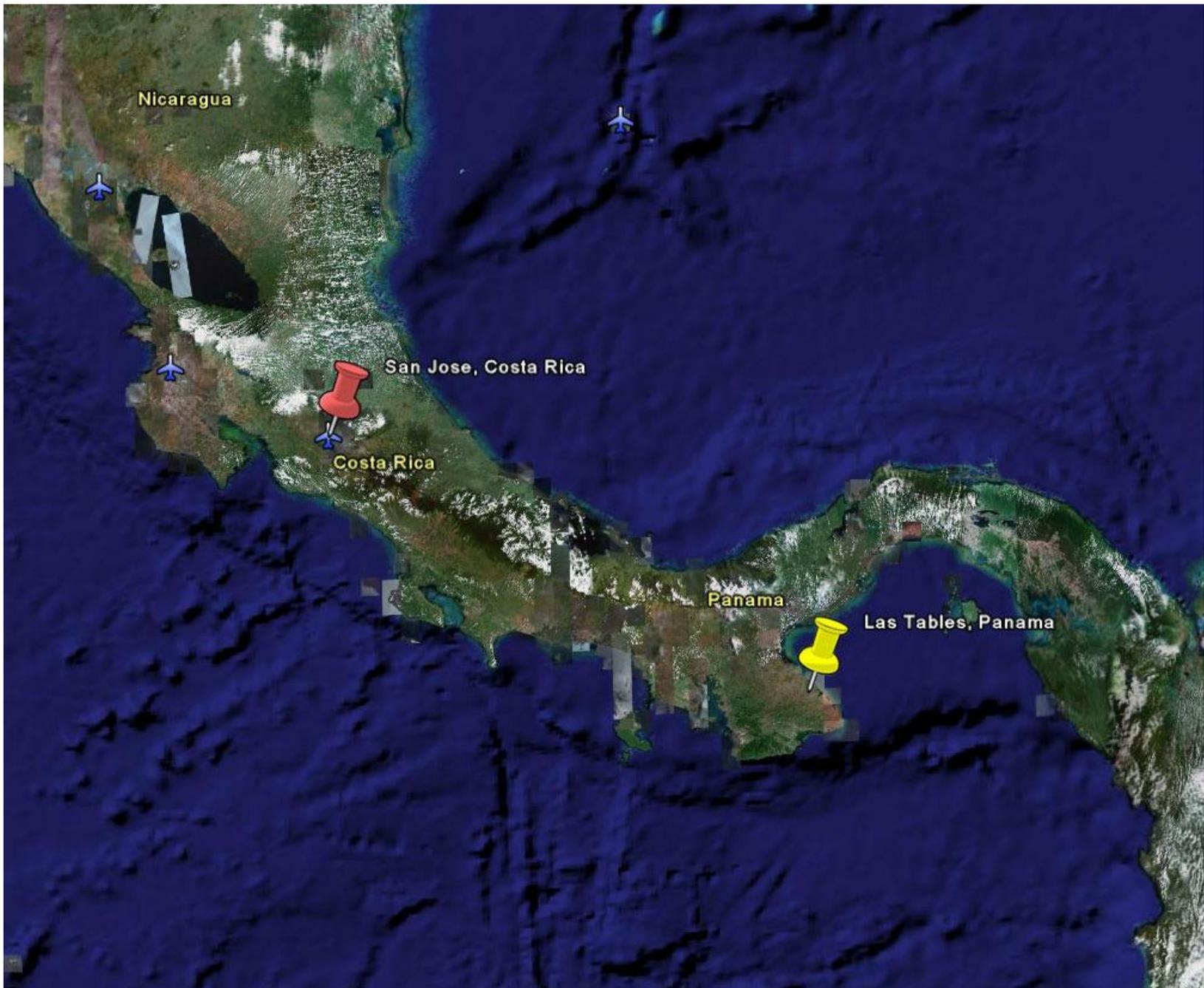
- International Cooperative Administrative Support Services (ICASS) Agreement with Embassy - in place
- Letter of Agreement with CeNAT - within the next 2 weeks
- Diplomatic Clearances - cable submitted
- Country Clearances - Submitted through NASA center you are most affiliated with. Those not associated with a NASA center, Country Clearances will go through ESPO.



Communications

Earth Science Project Office

- **TC-4 Home Page**
 - **Mission Planning**
 - Mission Calendar
 - Daily Schedule
 - Flight Plans & Reports
 - Weather
 - **Logistics**
 - Shipping
 - Hotel, Car Rental, Maps
 - Computer Network
 - Lab Layout
 - Local Information
 - **Science**
 - Science Overview
 - Flight Report
 - Presentations
 - Data Archive, Exchange Plan, Exchange Protocol, Quick Look
 - **Platforms**
 - Aircraft
 - Ground Instruments
 - Airborne Instruments
 - **Participants**
 - **Links**
 - **Photos**
- Website: <http://www.espo.nasa.gov/TC4>*



Panama Site Visit

- Met with the US Embassy in Panama City as well as the Governor and Mayor of Las Tablas.

Panama collaborators include the University of Panama, SENACYT (Panama National Science Foundation), Civil Aviation Authority, Centro del Agua del Tropic Humedo para America Latina y el Caribe, Ministry of Education, Autoridad Nacional del Ambiente and the US Embassy Panama.

Panama

General Information



- Currency: U.S. Dollars: Coins = Balboas
- Visas: Required for US visitors and can be purchased at the airport. Other nationalities, check with your Embassy. There is a departure tax. Government personnel will have to get a visa through NASA. Only good for 3 months.
- Telecommunications: Internet, phones, SIM cards are cheap (\$3.95) and easy to get.
- Time: Panama standard time is GMT -5 hours.
- Power: 110 V, 60 Hz
- USG Per diem: \$156/\$98 Lab Tablas \$42/\$31

Panama

Travel & Logistics

- Air travel.
 - Commercial Air to Panama City. Major airlines. Multiple flights.
 - Costa Rica to Panama. Taca Airlines and Copa Airlines. 40 min flight. Multiple flights.
 - Lab Tablas is approximately 3.5 hrs south of Panama City.
- Health and Safety
 - Tap water is considered safe throughout the country but we recommend you buy bottled water. Sun is hot and humidity high.
 - Take whatever prescription and OTC medications you might need with you.
 - We will send out a list of recommended vaccines.
 - U.S. State Department Consular Information Sheets:
 - <http://travel.state.gov/>

Contacts

- ESPO Deployment Contact Info
 - Marilyn Vasques Project Manager
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 - Mike Craig Project Manager / WB-57
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 - Sue Tolley Project Coordinator
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Open Issues

- Complete repairs to WB-57 Hangar.
- Complete modifications to Presidential Hangar and Club.
- Confirm Panama location and set up communications infrastructure.

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