

# Mission Registration Base Information Logistics

**Earth Science Project Office**

Jhony Zavaleta, Kent Shiffer, Steven Todorov



# Introduction

- Civilian Landing Permits
- Website Registration
- Osan Air Base
  - Access
  - Restrictions
  - Orientation
  - Lodging
  - Work and Lab Spaces
  - Aircraft Parking
- Shipping



# Civilian Landing Permit Deadlines


- It was recommended to submit requests at least 60 days in advance. Deadline for all requests *Nov 1, 2015*. Requests include:
  - DD Form 2400 Civil Aircraft Certificate of Insurance
  - DD Form 2401 Civil Aircraft Landing Permit
  - DD Form 2402 Civil Aircraft Hold Harmless Agreement



# ESPO Website Registration Timeline

- Invitation & instructions to register for the deployment go out ***November 1. DUE DECEMBER 1***






[ESPO](#)
[ESPO Archive](#)
[Flight Request](#)
[Mission Tools](#)

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[KORUS-AQ Home](#)
[Mission Planning](#)
[Science](#)
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[Add Daily Schedule Entry](#)
[Add Daily Forecast Entry](#)
[Add News Item](#)
[Submit Science Report](#)
[Upload Image](#)
[Upload Document](#)
[Add Mailing List](#)



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### KORUS-AQ

**KORUS-AQ: An International Cooperative Air Quality Field Study in Korea**

**US Steering Group:** Jassim Al-Saadi, Gregory Carmichael, James Crawford, Louisa Emmons, and Saewung Kim

**Korean Steering Group:** Chang-Keun Song, Lim-Seok Chang, Gangwoong Lee, Jhoon Kim, and Rokjin Park

**Introduction**

Air Quality is an environmental concern of fundamental importance across the globe. The need to monitor and understand air quality requires continual effort as populations grow, energy use increases, and industrial activity evolves. Air quality goals have also evolved as improved understanding of health effects has demonstrated the added benefit of setting lower targets for exposure of humans and ecosystems to ozone, fine particles, and other toxic pollutants in the air. Long-term efforts have relied primarily on ground-based observations to diagnose regions of poor air quality and modeling to develop mitigation strategies. In recent years, satellites in low Earth orbit (LEO) have demonstrated the ability to observe the critical constituents affecting air quality. However, the impact of LEO observations has been limited by their infrequent nature and coarse resolution with respect to source distributions and timing (approximately once per day at horizontal scales of tens of km), insufficient to observe the details of air quality events that can develop over timescales of a single day. The promise of geostationary (GEO) observations as a vantage point for studying air quality can overcome these problems by providing observations many times throughout the day and at higher spatial resolution by taking advantage of longer viewing times. The drawback of GEO is the limited viewing domain, preventing global observations with a single satellite. This has led to an international effort to launch a constellation of satellite instruments focused on air quality over Asia, North America, and Europe. These instruments will provide hourly observations of those regions throughout the day at horizontal resolutions of better than 10 km. The funded GEO atmospheric chemistry instruments expected to launch in 2018-2019 include GEMS by the Republic of Korea, TEMPO by the US, and Sentinel-4 by Europe (Figure 1). Also, with its planned launch in 2016 the Sentinel-5 Precursor (S5P) mission will begin providing the next generation of once-daily global measurements from LEO at horizontal resolution similar to the GEO missions.

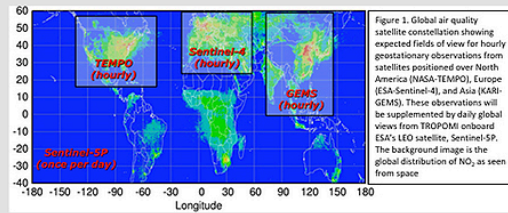


Figure 1. Global air quality satellite constellation showing expected fields of view for hourly geostationary observations from satellites positioned over North America (NASA-TEMPO), Europe (ESA-Sentinel-4), and Asia (KARI-GEMS). These observations will be supplemented by daily global views from TROPOMI onboard ESA's LEO satellite, Sentinel-5P. The background image is the global distribution of NO<sub>2</sub> as seen from space.

See the [Science Overview](#) page for mission related documentation.

View or download the [Osan Air Base Traveler Information Package](#) (3rd UPDATE - June 25th, 2015)

# ESPO Website

## Mission Registration



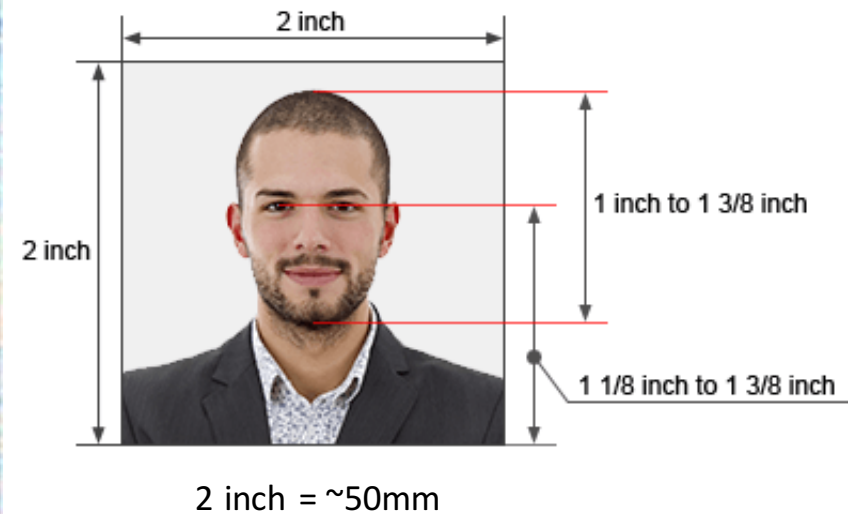
# ESPO Website Registration

- Provide separate travel information for specific activities:
  - Integration
    - Armstrong Flight Research Center (AFRC) in Palmdale, CA
  - Deployment
    - Osan Air Base, Republic of Korea
  - De-integration
    - Armstrong Flight Research Center (AFRC) in Palmdale, CA
- Dates should indicate **arrival date** and **departure date at the site**.
  - *(NOT the departure and arrival date from your starting point)*



# ESPO Website Registration

- MUST upload requested photographs/scans (head/face - passport style)



# ESPO Website Registration

- Information Required for everyone (as per USFK Form 37EK):
  - Full Name
  - Gender
  - Date and Place of Birth
  - Address & Phone number
  - Height
  - Weight
  - Hair Color
  - Eye color



# ESPO Website Registration

- **Korean Nationals:**

- Affiliation (research institution, university, etc.)
- Korean ID information: number expiration date
- Upload scan/picture of KID document
- If planning to bring a vehicle, include vehicle information:
  - Make, model, year
  - Registration number
  - Insurance policy number



# ESPO Website Registration


- Non-Korean personnel:
  - Scan of passport information page (US citizens)
  - Scan of Permanent Resident Card
  - Scan of US Visa page (as applicable)
- Retired US military: No Osan ID card to be issued, notify ESPO, name will be submitted to DBIS.



# ESPO Website Registration Invitations

- You MUST receive an email invitation (to be linked to the mission.)
  - PI from each instrument can also add members to their team or send ESPO a request for an invitation.
- Initial Invitations are good for 1 week only, one time use.
- Password can be reset/requested at the registration page.
- ***It is very important!***






ESPOESPO ArchiveFlight RequestMission Tools

[My account](#) | [Log out](#)

[Search](#)



Your contact info is incomplete. Please [edit your contact info](#) and fill in all missing fields.  
You have not completed registration for the KORUS-AQ mission. Please go to the [mission registration page](#) for more details.

KORUS-AQ Home

▶ Mission Planning

▶ Science



Participants

Registration

Submit Science Report

Upload Image

# KORUS-AQ ESPO



## KORUS-AQ: An International Cooperative Air Quality Field Study in Korea

**US Steering Group:** Jassim Al-Saadi, Gregory Carmichael, James Crawford, Louisa Emmons, and Saewung Kim

**Korean Steering Group:** Chang-Keun Song, Lim-Seok Chang, Gangwoong Lee, Jhoon Kim, and Rokjin Park

### Introduction

Air Quality is an environmental concern of fundamental importance across the globe. The need to monitor and understand air quality requires continual effort as populations grow, energy use increases, and industrial activity evolves. Air quality goals have also evolved as improved understanding of health effects has demonstrated the added benefit of setting lower targets for exposure of humans and ecosystems to ozone, fine particles, and other toxic pollutants in the air. Long-term efforts have relied primarily on ground-based observations to diagnose regions of poor air quality and modeling to develop mitigation strategies.

To Register Click on this link

To Register Click on this link



KORUS-AQ Home

▶ Mission Planning

▶ Science


Participants

Registration

Submit Science Report

Upload Image

KORUS-AQESPO



Home > dantest > KORUS-AQ Mission Registration for Dan Chirica

View

Contact Info

PII

Edit

Mission DB

Track

Welcome to the registration database for the KORUS-AQ mission!

The registration database has been moved to a new format. The same information is being collected as in the previous ESPO mission database, however the format has been revised.


The following table summarizes the current status of the registration process.

Task	Status
<div><div>Contact Information</div><div>All mission participants need to provide contact information, including email address, work phone, and work address.</div><div>To review or update the information that has already been provided, go to <a href="#">this page</a>.</div></div>	Complete
<div><div>Travel Intentions</div><div>All mission participants need to provide information about the locations they will be participating in, and the dates of their planned participation.</div><div>To do: Go to <a href="#">this page</a>.</div></div>	Missing
<div><div>Personal Information</div><div>Participants who are going to the field need to provide additional information for security checks and badging at each deployment location.</div><div>Required fields that are currently incomplete or missing are: Address, Next of Kin Address, Next of Kin Name, Next of Kin Phone, Passport, Phone, Relation.</div><div>To do: Go to <a href="#">this page</a> and fill in any required information that is missing.</div></div>	Incomplete

To return to this page in the future, you can access it using the "Mission DB" tab on your user account page, or else using the "Registration" link in the mission menu.

Click here to provide basic  
Contact Information


Click here to fill in Personal Information



Help

KORUS-AQ

ESPO



KORUS-AQ Home

▶ Mission Planning

▶ Science

Participants

Registration

Submit Science Report

Upload Image

Home > dantest > Edit > Personal (PII) Profile for Dan Chirica

View

Contact Info

PII

Edit


Mission DB

Track


Account

Contact Info

Personal Info



The following form will allow you to provide personal information, as required by mission management for all mission participants. This includes personally identifiable information (PII), which is necessary in order to complete security checks and other procedures for issuing participant badges that grant access to hangar and airport facilities. The information will be available only to those personnel who need it: mission managers, badging office security officers, U.S. personnel (for foreign deployment), etc.



Check here to acknowledge you read and agree with the notifications

For your safety you are asked to provide your password again. Make sure you use a \*strong\* password


☐ I have read these conditions and agree

Password \*

You must enter your account password to confirm your identity.

Save

Delete



KORUS-AQ Home

► Mission Planning

► Science

Participants

Registration

Submit Science Report

Upload Image

# KORUS-AQ



Home > dantest > Edit > Personal (PII) Profile for Dan Chirica

View

Contact Info

PII

Edit

Mission DB

Track

Account

Contact Info

Personal Info



### SENSITIVE BUT UNCLASSIFIED (SBU) – PERSONALLY IDENTIFIABLE INFORMATION (PII)

The information on this page is to be controlled, stored, handled, transmitted, distributed, and disposed of in accordance with NASA policy relating to SBU information.



Only fields marked with a red asterisk are required.

The required fields are dependent on your current deployment locations and their badging requirements. The other fields may become required in future, if you participate in other missions.

If you are unable to complete the form at this time, please try to at least provide your US Residency Status and Citizenship Country as soon as possible. You will be able to save the page even if all required information has not been provided. However, the status of this page will remain incomplete and you will continue to receive reminders.

#### Personal Details

##### Official Name \*

Your full official name, as it appears on your passport and other identification.

-- Dan tChirica --  
Title Given Middle name(s) Family Generational

##### Gender

☒ Male ☐ Female

##### Date of Birth \*

Month Day Year  
Jan 1 1971

##### Birthplace

Country  
United States  
City State

##### Badging Photo

Choose File No file chosen Upload  
A **passport-style** photo of yourself that can be used on a security badge. The image must be in JPG, GIF, TIFF, PDF, or PNG format and be under 3MB in size.

#### Identification

##### US Residency Status

Visitor (no visa required)

##### NASA PIV Badge

A NASA PIV badge is the hard badge with the gold chip issued to NASA civil servants and NASA contractors. Center specific hard badges do

Under US Residency Status  
choose "Visitor (no visa required)"  
then ...



A [passport-style](#) photo of yourself that can be used on a security badge. The image must be in JPG, GIF, TIFF, PDF, or PNG format and be under 3MB in size.

#### ▼ Identification

##### US Residency Status

Visitor (no visa required)

##### NASA PIV Badge

A NASA PIV badge is the hard badge with the gold chip issued to NASA civil servants and NASA contractors. Center specific hard badges do not qualify, nor do badges issued by other government agencies.

I have a NASA PIV badge: ☒ No ☐ Yes

##### Common Access Card

A [Common Access Card](#) (CAC) is the identification card issued to U.S. military personnel.

I have a Common Access Card: ☒ No ☐ Yes

##### Social Security Number

##### National ID Number \*

Provide any national identification number used for this ID may differ depending upon your country. For example, Koreans this is called the KID.

12653542143

Please provide your KID (Korean Identification) Number in this field.  
All other fields on this page can be ignored ... then



- Select a value -

Relationship of your next of kin to you.

Show row weights

### Next of Kin Phone



- Select -

- Guess from number -

Next of kin's contact phone number(s).

Add another item

### Next of Kin Address

☐ Next of kin address is same as home address.

#### Country

United States

#### Address 1

#### Address 2

#### City

#### State

#### ZIP Code

... then, scroll to the bottom of the page and click 'Save'



TH


#### SBU – PERSONALLY IDENTIFIABLE INFORMATION (PII)

... controlled, stored, handled, transmitted, distributed, and disposed of in ... relating to SBU information.

Save

Delete





ESPOESPO ArchiveFlight RequestMission Tools

> My account | > Log out

✖

Passport field is incomplete. Need to provide: File  
Address field is incomplete. Need to provide: Address,  
Phone field is missing.  
Next of Kin Name field is missing.  
Relation field is missing.  
Next of Kin Phone field is missing.  
Next of Kin Address field is incomplete. Need to provide: Address, City

⚠

The provided information has been saved, even though it is incomplete. You will continue to receive reminder messages until any missing data is provided.

✓

PII Profile Personal (PII) Profile for Dan Chirica has been updated.

KORUS-AQ Home

▶ Mission Planning

▶ Science

Participants

Registration

Submit Science Report

Upload Image

KORUS-AQESPO

Home > dantest > KORUS-AQ Mission Registration for Dan Chirica

View

Contact Info

PII

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<b>Travel Intentions</b> All mission participants need to provide details on which deployment dates of their planned participation. <b>To do:</b> Go to <a href="#">this page</a> and fill out each section.	Missing
<b>Personal Information</b> Participants who are going to the field need to provide additional information to <a href="#">this page</a> and badging. Required fields that are currently incomplete or missing are: Address, Next of Kin Address, Next of Kin Name, Next of Kin Phone, Passport, Phone, Relation. <b>To do:</b> Go to <a href="#">this page</a> and fill in any required information that is missing.	Incomplete

To return to this page in the future, you can access it using the "Mission DB" tab on your user account page, or else using the "Registration" link in the mission menu.

This warning message can be ignored. This is a generic form used for projects that need more information. We only need your KID number at this time.

Also, this 'Incomplete' notification can be ignored. We only need the KID number at this time.



<b>Afghanistan</b>	<b>Libya</b>
<b>Albania</b>	<b>**Macau</b>
<b>Algeria</b>	<b>Macedonia</b>
<b>Armenia</b>	<b>Malaysia</b>
<b>Azerbaijan</b>	<b>Mali</b>
<b>Bahrain</b>	<b>Morocco</b>
<b>Bangladesh</b>	<b>Nicaragua</b>
<b>Belarus</b>	<b>Nigeria</b>
<b>Bolivia</b>	<b>North Korea</b>
<b>Bosnia-Herzegovina</b>	<b>Oman</b>
<b>Burma (Myanmar)</b>	<b>Pakistan</b>
<b>**China</b>	<b>Palestinian Authority</b>
<b>Colombia</b>	<b>Peru</b>
<b>Croatia</b>	<b>Qatar</b>

- Notify ESPO NLT **November 1st, 2015**
- Need to identify specific escorts no later than **February 1<sup>st</sup>, 2016**

## Citizens from Designated Countries

<b>Cuba</b>	<b>Russia</b>
<b>Djibouti</b>	<b>Saudi Arabia</b>
<b>Egypt</b>	<b>Serbia/Montenegro</b>
<b>France</b>	<b>Singapore</b>
<b>Georgia</b>	<b>Somalia</b>
<b>**Hong Kong</b>	<b>Sudan</b>
<b>India</b>	<b>Syria</b>
<b>Indonesia</b>	<b>***Taiwan</b>
<b>Iran</b>	<b>Tajikistan</b>
<b>Iraq</b>	<b>Tunisia</b>
<b>Israel</b>	<b>Turkmenistan</b>
<b>Jordan</b>	<b>Ukraine</b>
<b>Kazakhstan</b>	<b>United Arab Emirates</b>
<b>Kuwait</b>	<b>Uzbekistan</b>
<b>Kyrgyzstan</b>	<b>Venezuela</b>
<b>Laos</b>	<b>Vietnam</b>
<b>Lebanon</b>	<b>Yemen</b>

# Osan Air Base Access

- Identification while on base:
  - Base Issued ID
  - KID /passport
  - Mission badge



# Osan Air Base Access

- US citizens can escort up to **3 people** and **one vehicle**.
- Citizens from **Designated countries**: **must be escorted at all times** and **cannot** stay on base.
- ESPO will distribute a *Traveler Information Package* before the deployment (***End of March, 2016***). Check website for information.



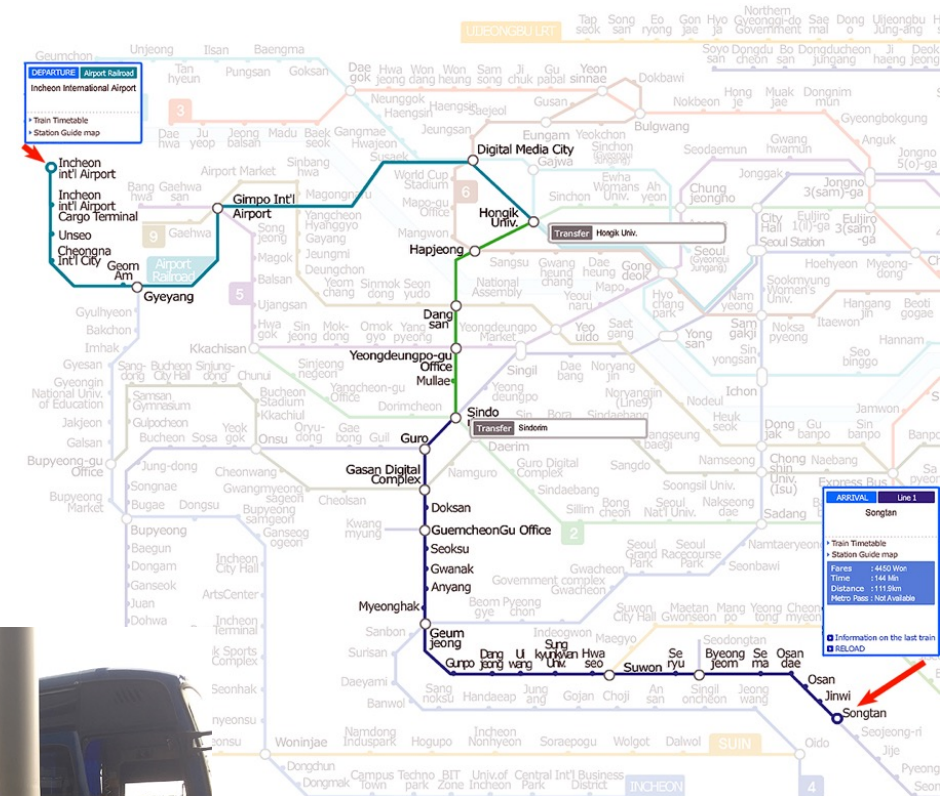
# Osan Air Base Restrictions

- No Photography in the flight line or towards the runway. No photographing of military aircraft.
- DCP escorted at all times
- Always carry Identification: and proof of any special access/training as needed.
- Last minute visitors:
  - Must be escorted at all times
  - No after hours
  - Cannot stay on base
  - No DCP
  - Add to database and notify ESPO



# Transportation

- From Airport to Osan AB
  - Bus Transportation
  - Metro
  - *Taxi (not recommended)*



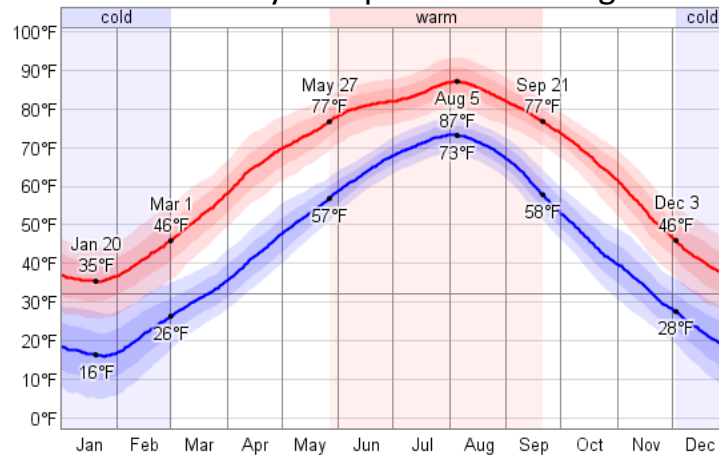
# Transportation

- On base (everything is within 1.5Km (1 mile) distance)
  - Privately owned vehicles are OK
  - Taxi (~3000 Won/~\$3USD)
  - Walking
  - Bike
- Off base: (See the orientation package)
  - Train
  - Bus

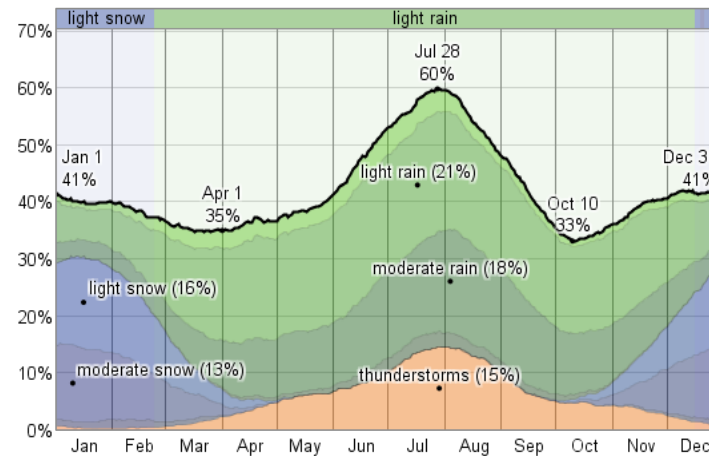


# Osan AB - Weather Averages

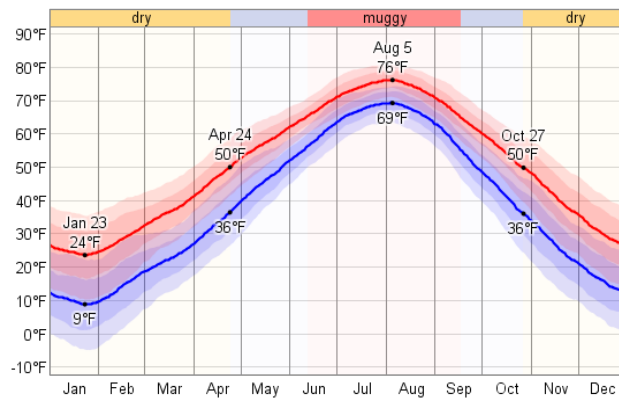
## Monthly Temperature Averages



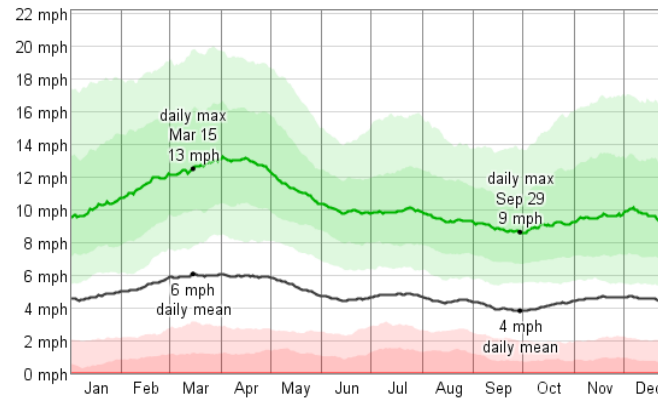
## Monthly Precipitation Averages



## Monthly Humidity Averages



## Monthly Wind Speed Averages



# Lodging

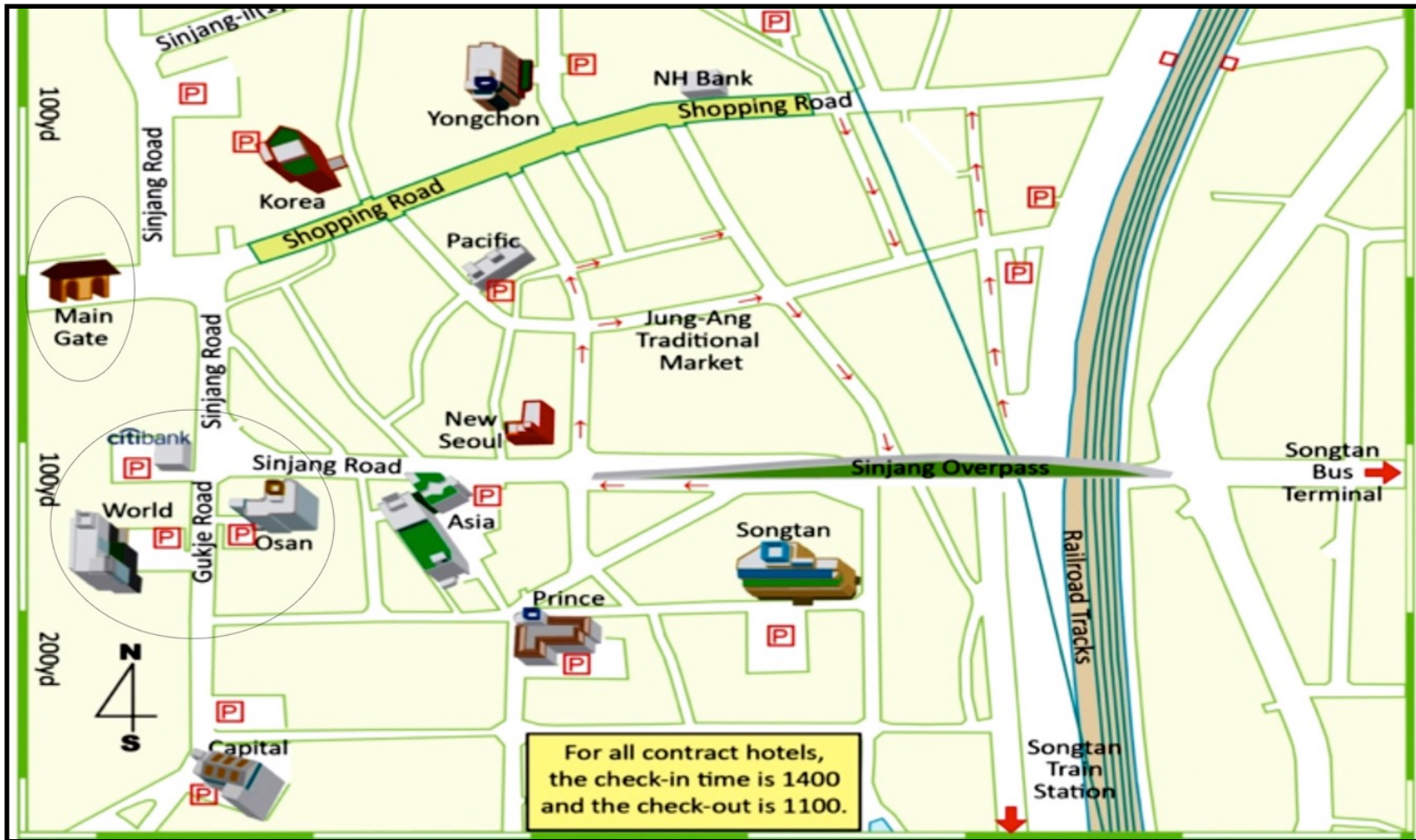
- On base: Turumi Lodge (150 rooms)
  - Rate: \$60/night
- Off base:
  - Contract hotels just outside the base
  - Rate: ~\$85USD
- Per Diem rates are different in each case.
  - Osan Air Base (Other):\$77/\$52
  - Off-base hotels (Pyongtaek City): \$82/\$63

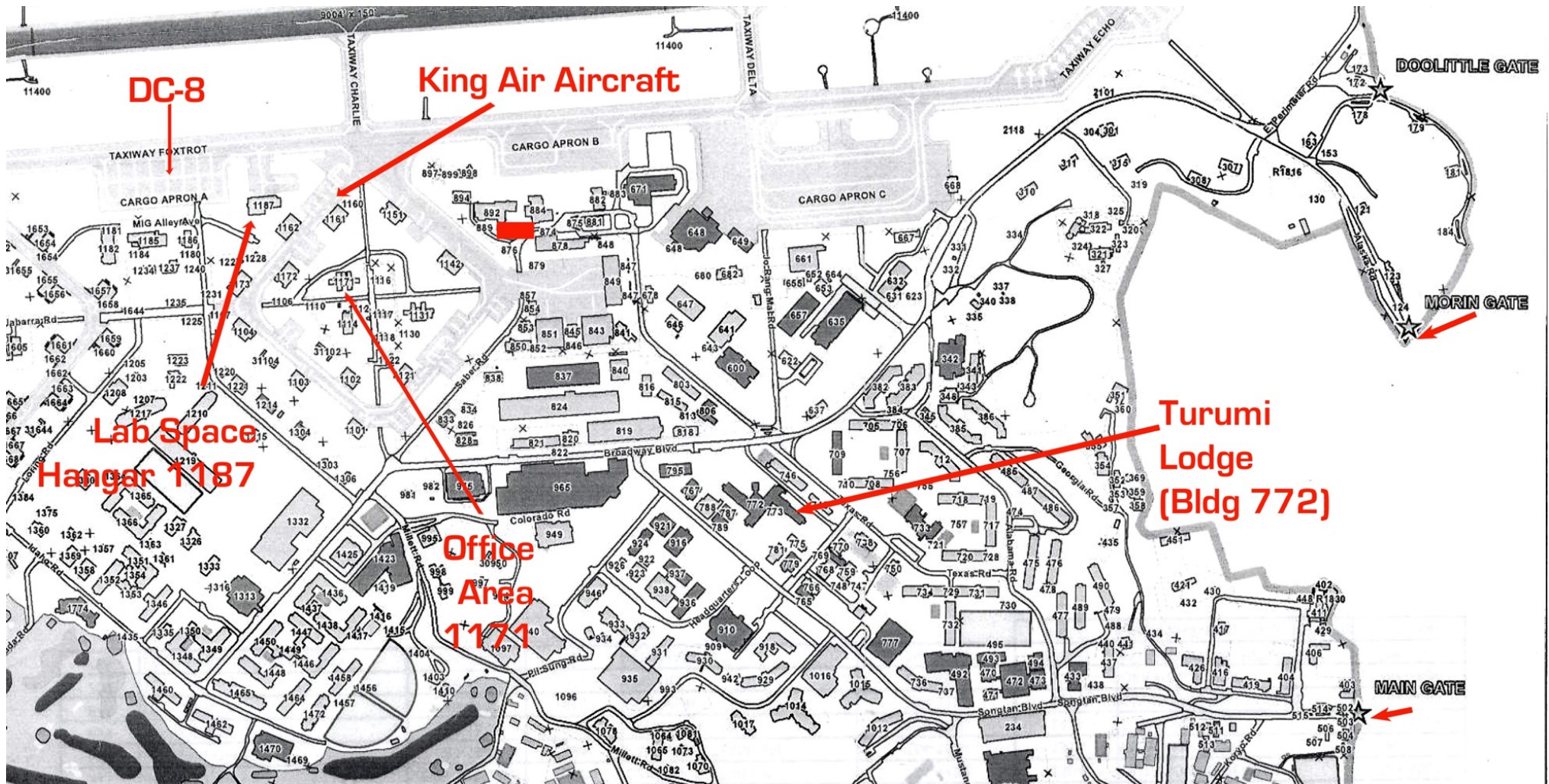




# OSAN AIR BASE MAP

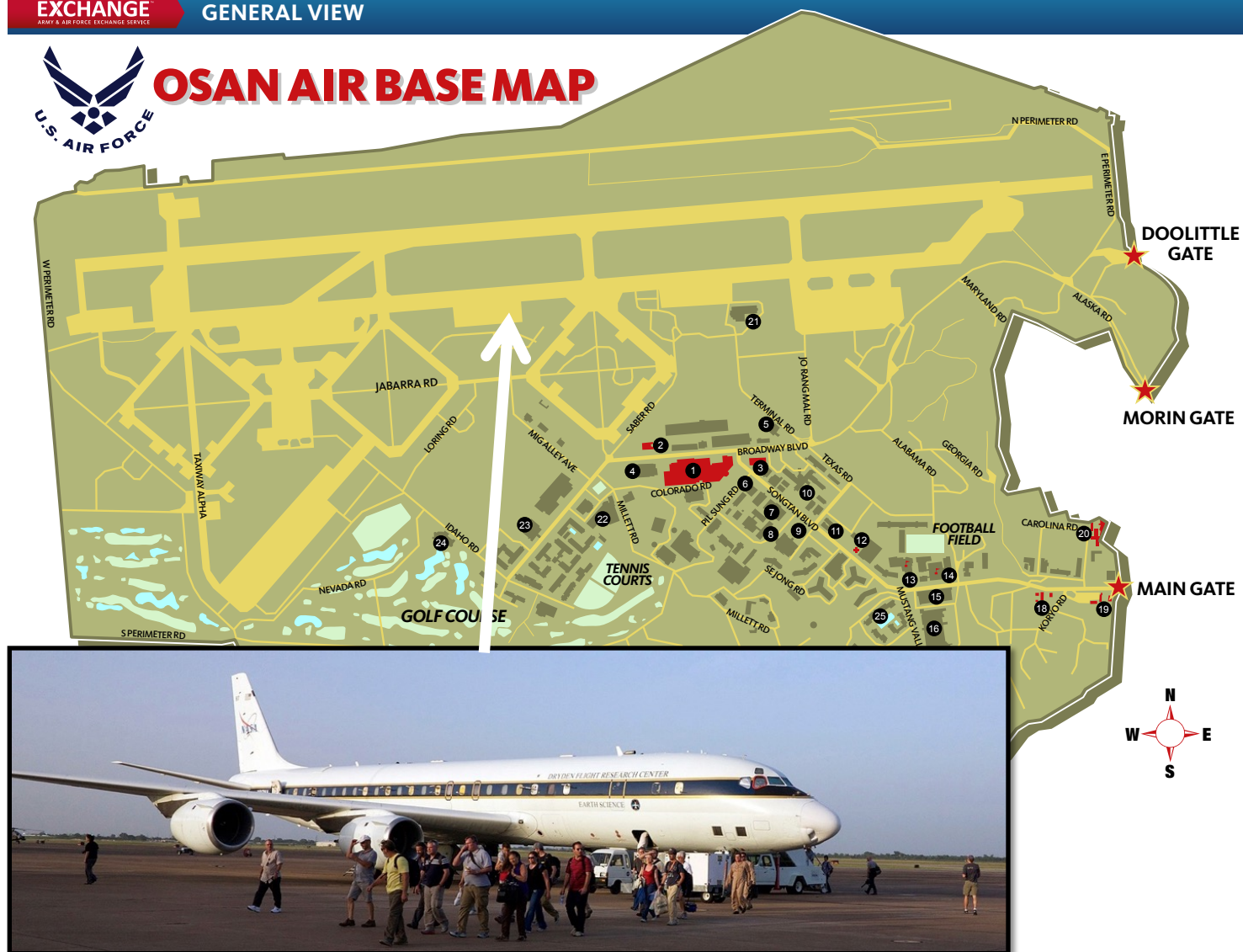








# OSAN AIR BASE MAP



EXCHANGE  
ARMY & AIR FORCE EXCHANGE SERVICE

GENERAL VIEW



# OSAN AIR BASE MAP



Three B-200 aircraft: NIER, KMA, NASA



# Work and Lab Spaces

- **Office Space** (building 1171)
- Science team, forecast teams, flight crews, etc.
- Power available is 120V/60Hz (on 20A circuits)
  - If needed, higher amperage can be requested.
- Wi-Fi (100Mbs). Is a static IP needed?

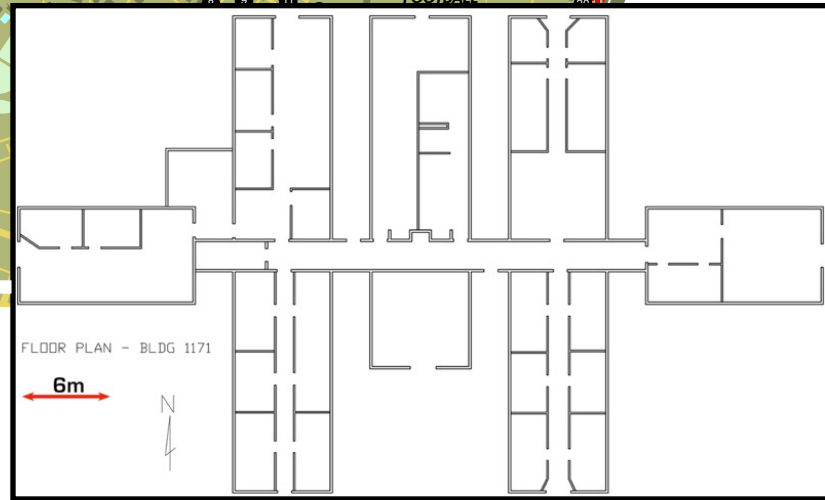


EXCHANGE  
ARMY & AIR FORCE EXCHANGE SERVICE

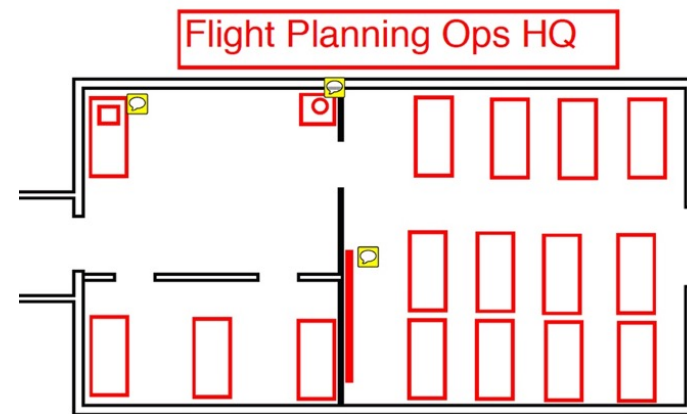
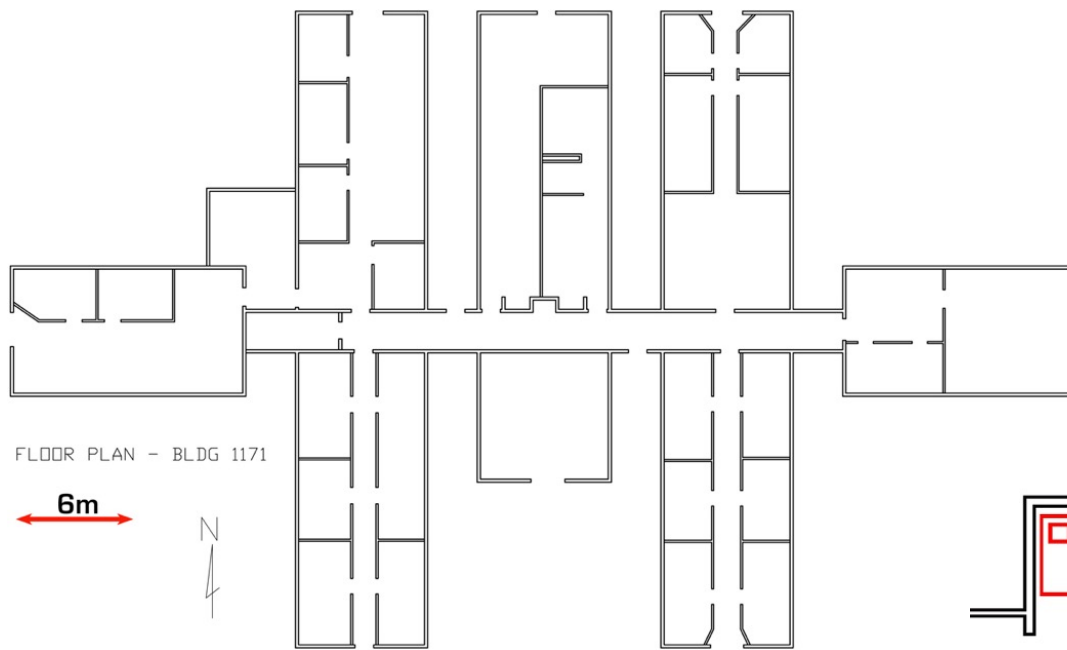
GENERAL VIEW



# OSAN AIR BASE MAP



# Office Area



Building 1171  
Osan AB





# Work & Lab Spaces

- Hangar Space (building 1187): Instrument Work
- Closest proximity to DC-8
- No air conditioning
- Power available is 120V/60Hz (on 20A circuits)
  - If needed, higher amperage can be requested.
- Wi-Fi (100Mbs). Is a static IP needed?

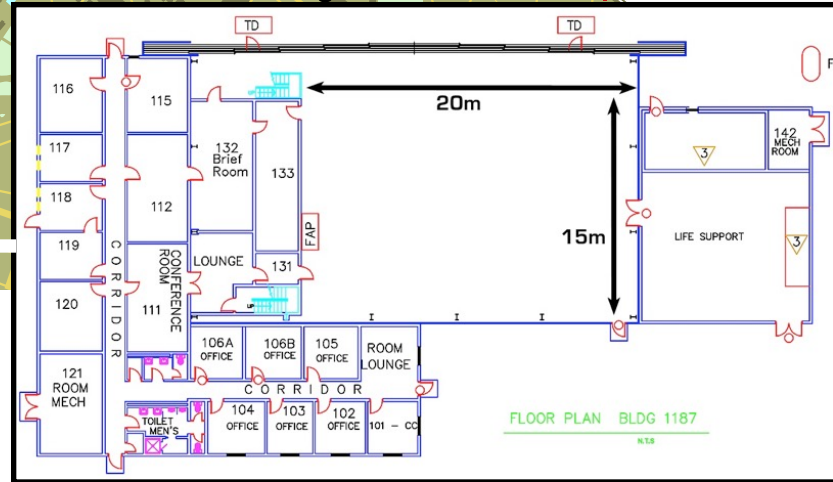
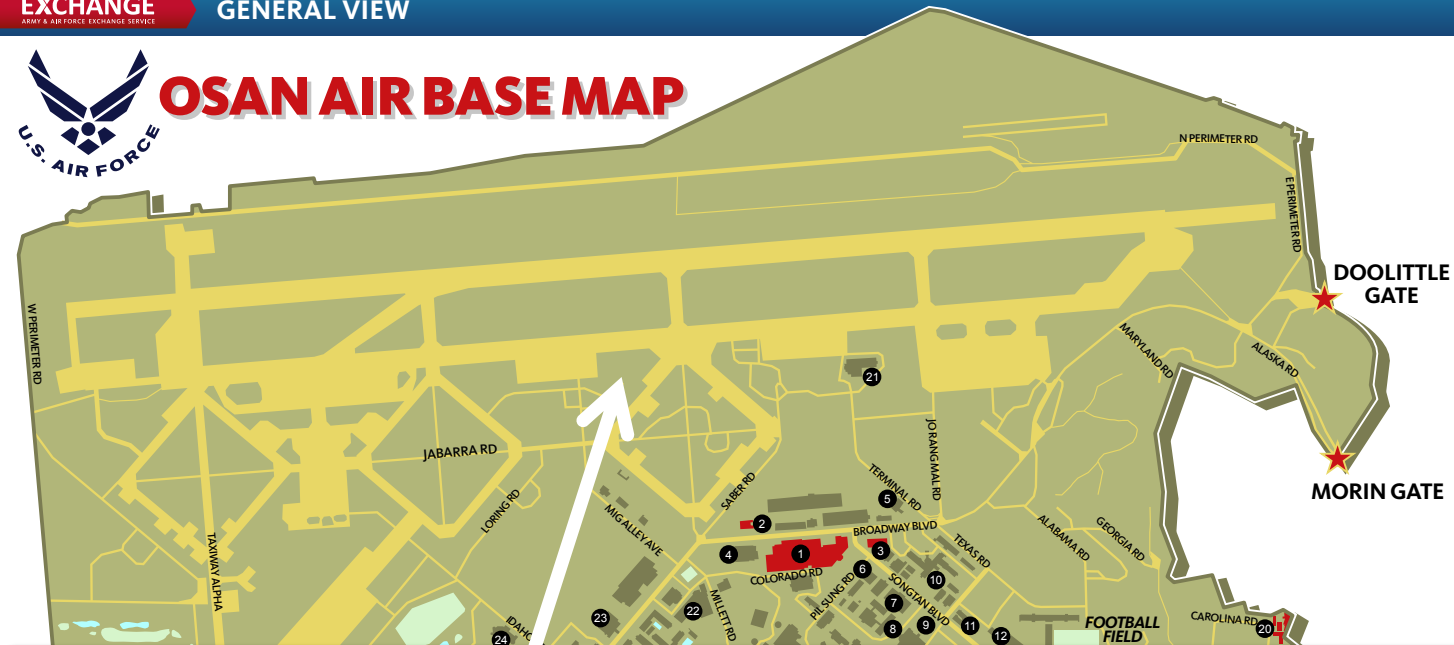


EXCHANGE  
ARMY & AIR FORCE EXCHANGE SERVICE

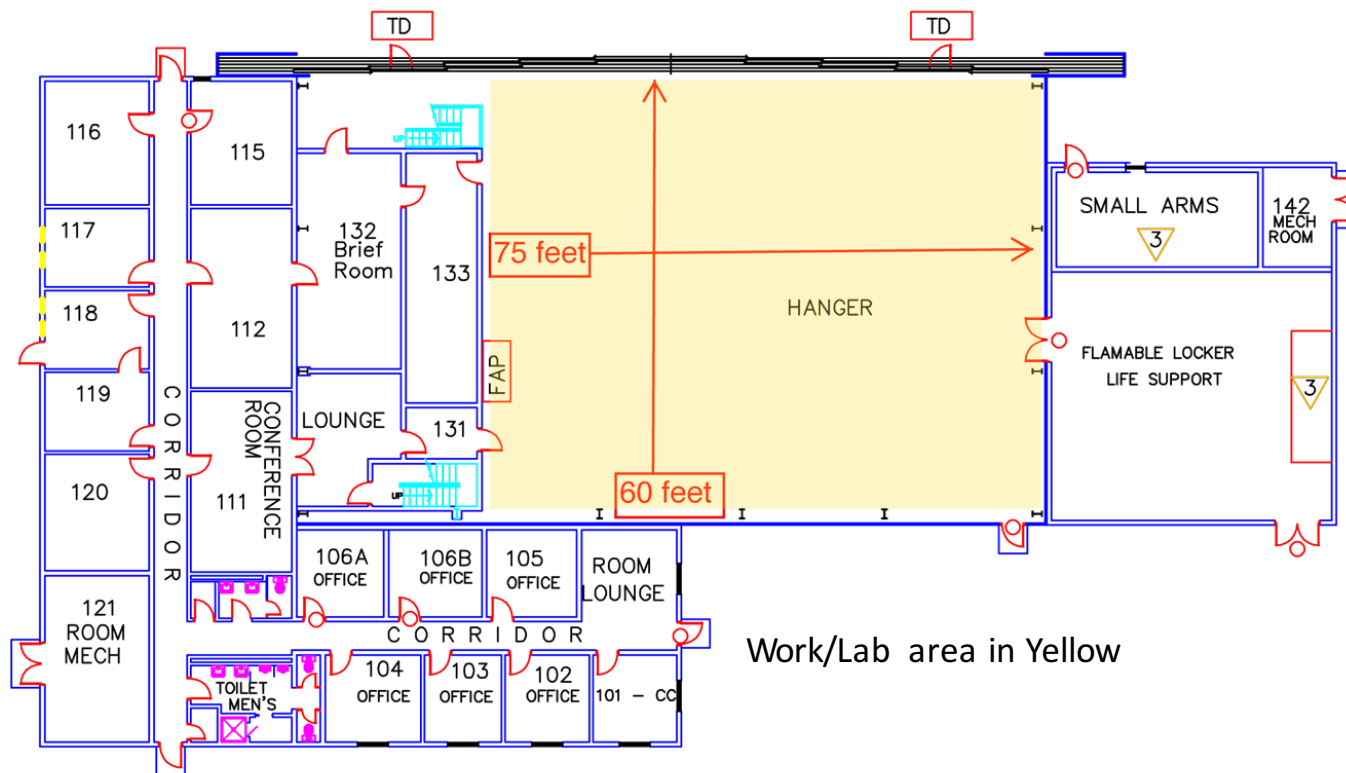
GENERAL VIEW



# OSAN AIR BASE MAP



# Lab Area





# Shipping

## Shipping Point of Contact Information

Steven Todorov  
Earth Science Project Office  
[Steven.m.todorov@nasa.gov](mailto:Steven.m.todorov@nasa.gov)  
(650) 996-9335



# KORUS-AQ Mission Website

## Central Clearinghouse for ALL Shipping Logistics



The screenshot displays the KORUS-AQ Mission Website interface. The top navigation bar includes the NASA logo, ESPO, ESPO Archive, Flight Request, and Mission Tools. Below this, there are links for 'Log in to KORUS-AQ' and 'Create New Account', along with a search bar. The left sidebar menu lists several options: 'KORUS-AQ Home', 'Mission Planning' (highlighted with a red box and a red arrow), 'Mission Calendar', 'Shipping' (highlighted with a red box and a red arrow), 'Science', 'Participants', and 'Shared Files'. The main content area features a large banner with the text 'KORUS-AQ ESPO' and a NASA logo. Below the banner, the breadcrumb trail reads 'Home > Mission Planning > KORUS-AQ Shipping'. The main heading is 'KORUS-AQ Shipping'. The content area also includes a date stamp 'Current as of: September 28, 2015' and a message: 'Please return the completed KORUS-AQ Shipping Survey to Steven Todorov by October 9, 2015.' The bottom of the page shows the beginning of a section titled 'KORUS-AQ Shipping Overview'.

KORUS-AQ ESPO

Home > Mission Planning > KORUS-AQ Shipping

KORUS-AQ Shipping

Current as of: September 28, 2015

Please return the completed KORUS-AQ Shipping Survey to Steven Todorov by October 9, 2015.

KORUS-AQ Shipping Overview



# KORUS-AQ Mission Website

## Central Clearinghouse for ALL Shipping Logistics

Contact Info

Tentative Shipping Dates

Final Dates are based  
on not yet published  
schedules

Shipping Survey

Please see me

Current as of: September 28, 2015

Please return the completed [KORUS-AQ Shipping Survey](#) to [Steven Todorov](#) by October 9, 2015.

### KORUS-AQ Shipping Overview

There will be two modes of shipping that will be utilized during the mission, a sea shipment and an air shipment.

**Palmdale to Osan AFB**  
**Sea Shipment- 12 FEB to 22 APRIL (TENTATIVE)**

The sea shipment is tentatively scheduled to be picked up from the hangar in Palmdale, CA on the 12th of February and is scheduled to arrive at Osan AFB on 22nd of April. Some items that are classified as dangerous goods can not be shipped via aircraft and still others may be prohibitively expensive to do so. In either case we will need to arrange for the advance shipment of these items on this February shipment. Please make any advance arrangements to ship any required calibration gasses in this shipment.

**Palmdale to Osan AFB**  
**Air Shipment- 18 APRIL to 26 APRIL (TENTATIVE)**

We will provide an air shipment that will depart Palmdale approximately 2 days after the final mission test flight. This will allow for a full day of packing prior to ESPO readying (palletizing and documenting) the shipment for pick up. The shipment is tentatively scheduled to depart Palmdale on 4/18 and arrive at Osan AFB on 4/26. I'll be using the information included in your completed [KORUS-AQ Shipping Survey](#) to reserve required space on the aircraft for our shipment.



# KORUS-AQ Mission Website

## Central Clearinghouse for ALL Shipping Logistics

Shipping to the  
Integration Site

Shipping POC Info

Contact both Karen and  
Myself in advance of  
your shipment to PMD

PMD Shipping Address

### Shipments to Palmdale

Please pack any fragile or sensitive equipment in hard shell cases with plenty of cushioning and avoid shipping loose items whenever possible. Clearly label all boxes with "KORUS-AQ" the instrument name, the PI's name, and contact mobile phone number. Before you ship your items to Palmdale, please email [Steven Todorov](mailto:steven.m.todorov@nasa.gov) and [Karen Richards](mailto:karen.l.richards@nasa.gov) with the number, size and weights of each shipment. Include the expected arrival date and carrier.

### Shipping Point of Contact (POC) Info

ESPO Steven Todorov ([steven.m.todorov@nasa.gov](mailto:steven.m.todorov@nasa.gov)) (650) 996-9335

DC-8/Palmdale Karen Richards ([karen.l.richards@nasa.gov](mailto:karen.l.richards@nasa.gov)) (661) 276-3675 / (661) 209-6569

### Shipping Address - Palmdale CA

NASA Aircraft Operations Facility  
2825 East Avenue P  
Palmdale, CA 93550

Attn: (your name)/Karen Richards



## KORUS-AQ Shipping Plan

# 2 Modes of Shipping

### Sea Shipment

Late February 2016

### Air Shipment

After final check flight



## KORUS-AQ Shipping Plan

### Sea Shipment

Haz Mats

- Gasses

- Chemicals

Equipment  
not needed  
for integration



## KORUS-AQ Shipping Plan

# Sea Shipment

### Tentative Shipping Schedule

Haz Mats at PMD **no later than 2/14**

Non- Haz Mats at PMD **no later than 2/22**

### Arrival at Osan Air Base

7-10 days in advance of 1<sup>st</sup> possible science flight



## KORUS-AQ Shipping Plan

### Air Shipment

Instrument support  
equipment, spares...

Calibration Gasses\*



\*Haz Mats will be segregated from general cargo



# KORUS-AQ Shipping Plan

## Air Shipment



Lithium Ion Batteries are being very closely monitored by the aviation industry.



### Lithium Battery Guidance Document

*Transport of Lithium Metal and Lithium Ion Batteries*

*Revised for the 2015 Regulations, Rev 1*

#### △ Introduction

This document is based on the provisions set out in the 2015-2016 Edition of the ICAO Technical Instruction for the Safe Transport of Dangerous Goods by Air and the 56<sup>th</sup> Edition of the IATA Dangerous Goods Regulations (DGR).

The purpose of this document is to provide guidance for complying with provisions applicable to the transport by air of lithium batteries as set out in the DGR. Specifically the document provides information on:

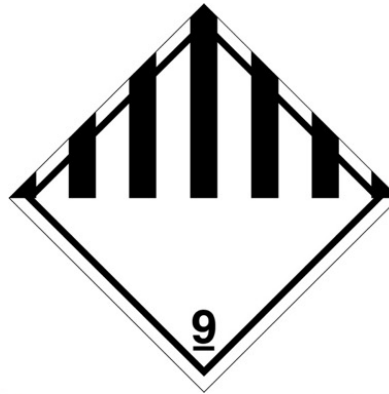
- Definitions;
- Classification (including classification flowcharts);
- Transport Conditions
- Exceptions;
- Special Provisions;
- 
- Prohibitions;



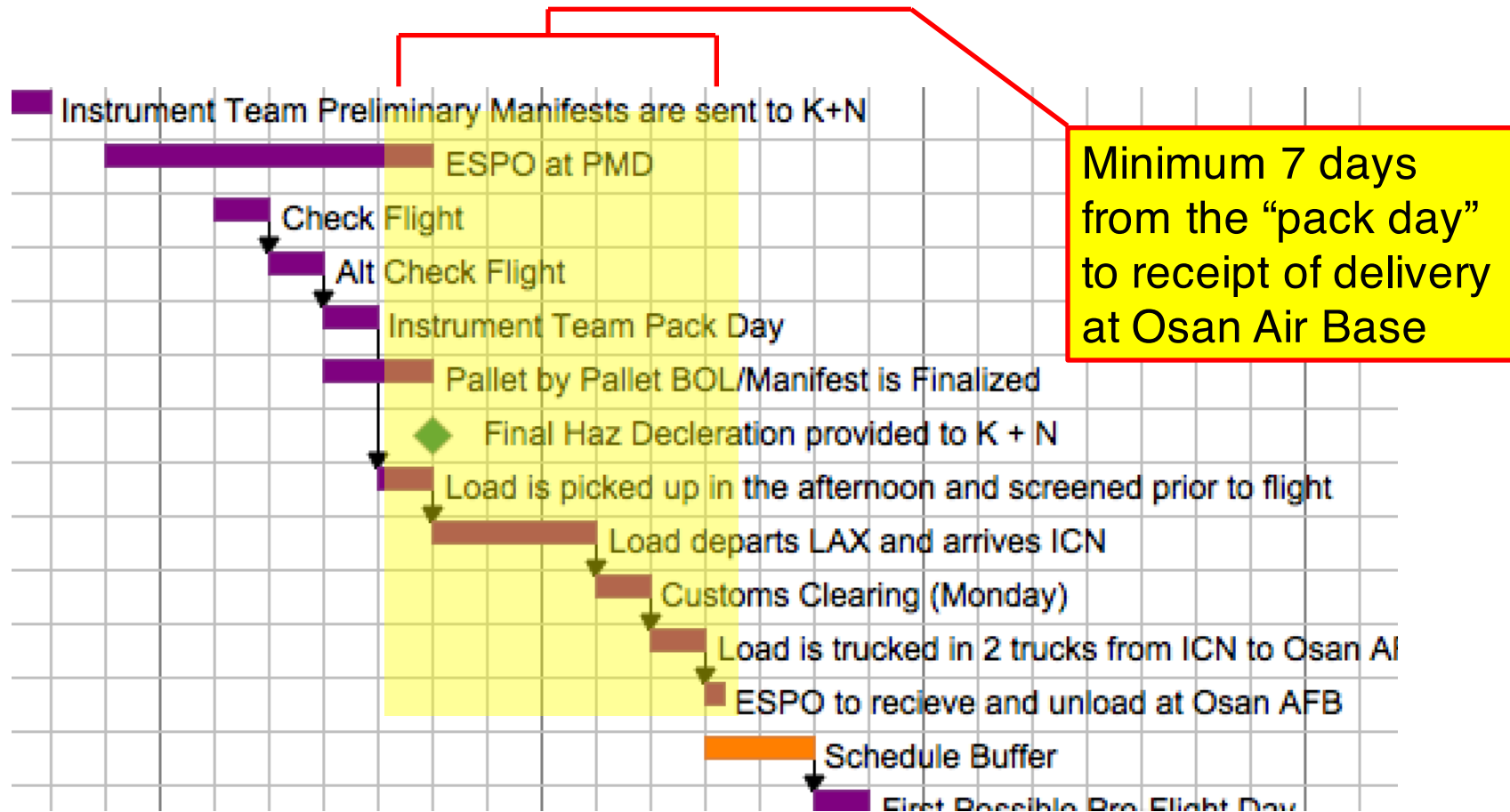
## KORUS-AQ Shipping Plan

# Air Shipment – Lithium Ion Batteries

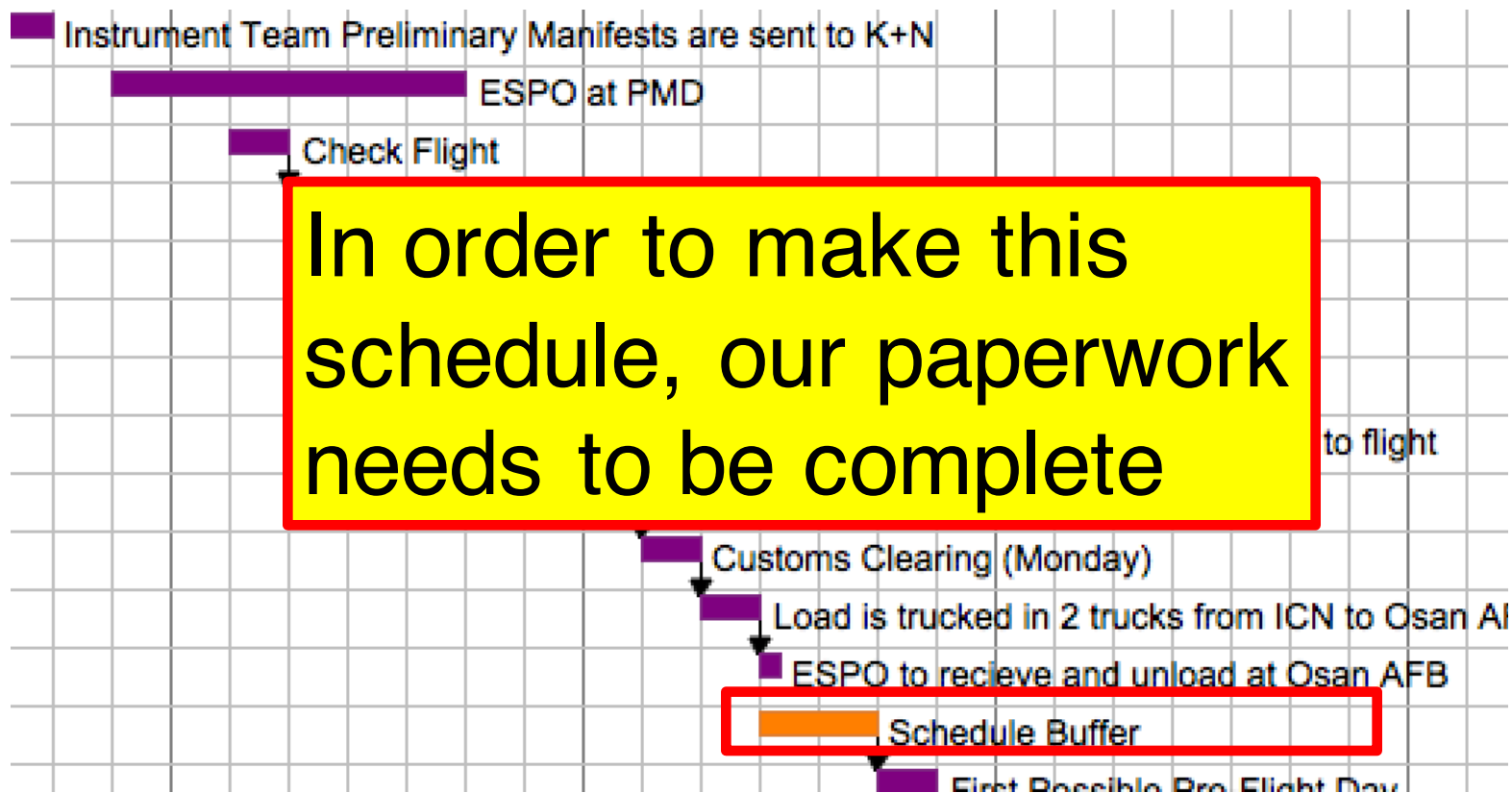
Regulations are based on watt hour specs and packaging



# Air Shipment - Timeline



# Air Shipment - Timeline



# Air and Sea Shipment Export Documentation

## Detailed Manifest of Items Being Shipped

Description of the Item	Handheld Oscilloscope
Manufacturer	Tektronix
Model Number	THS720A
Serial Number	B011028
Country of Manufacture	USA
Quantity Item	2
Unit Value	\$500
Total Value (Qty X Unit Value)	\$1,000

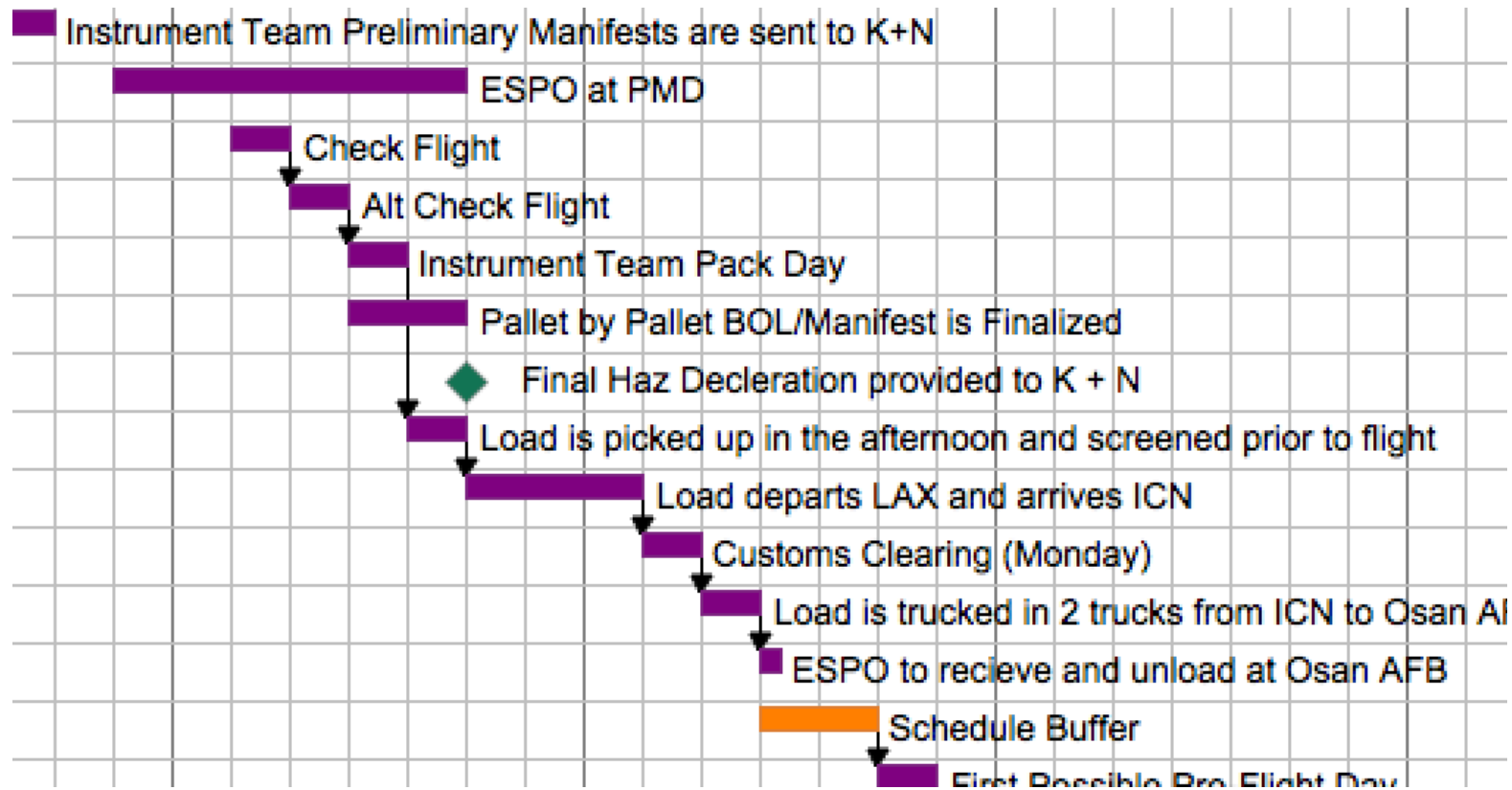


# Without this...

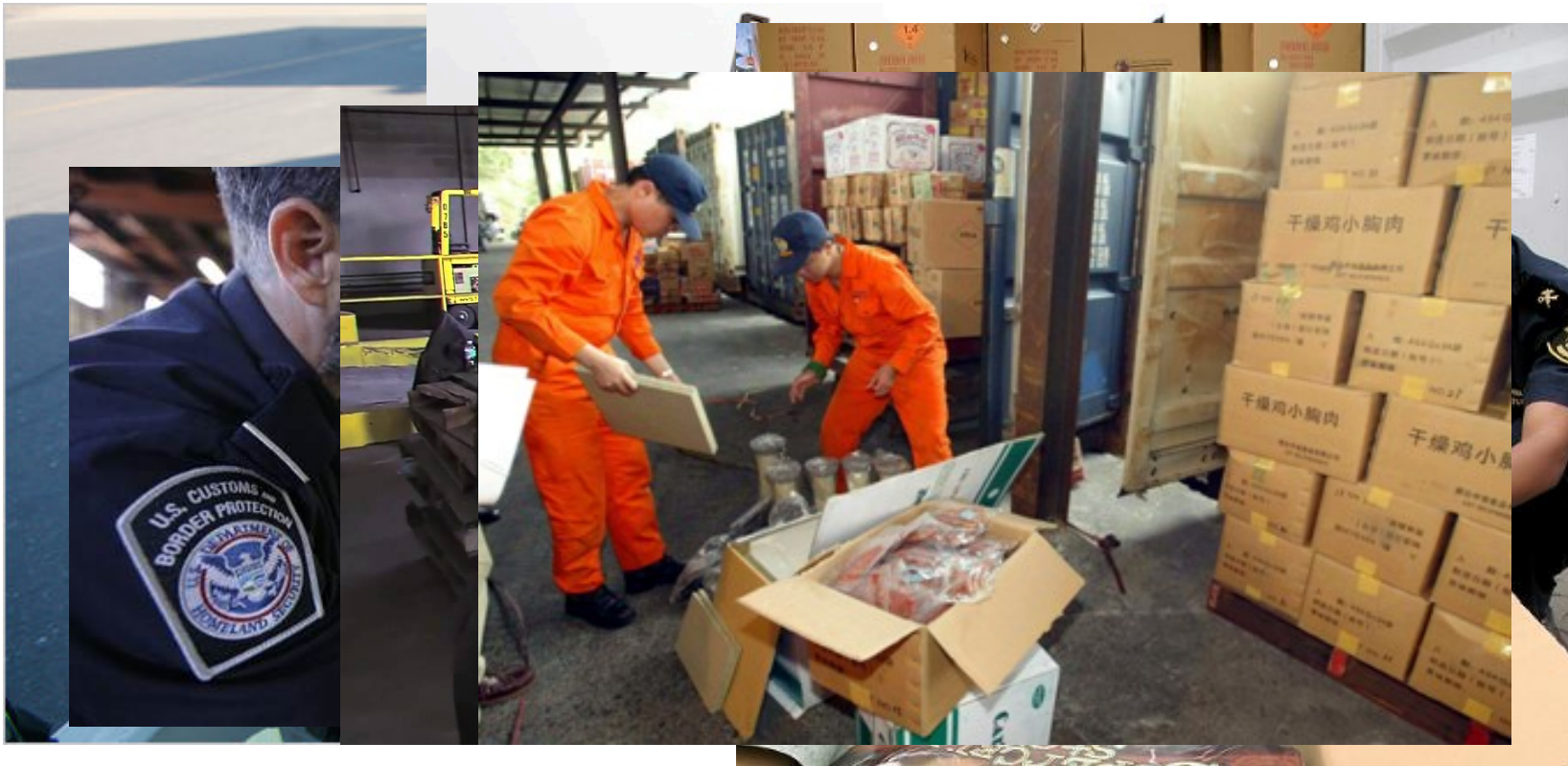
EXAMPLE INSTRUMENT TEAM								
Box #	Description	Manufacturer	Model Number	Serial Number	Country Manufact	Unit Value	Qty	Total Value
2	Laptop Computer	Toshiba		74333746KU	USA	\$1,593	1	\$1,593
2	Monitor	Asus	VE228H-	C7LMQS184841	USA	\$154	1	\$154
2	Monitor	Viewsonic	24AS485	Q78084780337	USA	\$146	1	\$146
2	Mini Computer	Dell	KJU458K659	23200160JEBC	USA	\$739	1	\$739
2	Miscellaneous Computer Cables	NA	NA	-	USA	\$100	1	\$100
2	Hand Tool Kit	NA	NA	-	USA	\$1,500	1	\$1,500
2	Miscellaneous Spares (Small Fittings and Parts)	NA	NA	-	USA	\$2,000	1	\$2,000
2	Laptop	Dell	DL564	E5540	USA	\$1,679	1	\$1,679



# You won't get this...



Instead you'll get this...



Local Gas Provider (Praxair)

ESPO is planning to supply:

- *Dry Ice*
- *Liquid Nitrogen (LN2)*



Steven Todorov  
Earth Science Project Office  
[Steven.m.todorov@nasa.gov](mailto:Steven.m.todorov@nasa.gov)  
(650) 996-9335

