

EXTERNAL INTERFACES

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- **External Interface Topics**

- *Foreign Partnerships*
- *ITAR Constraints*
- *External Interfaces*
- *Schedules*



- **Foreign Partnership**

- *Established Foreign Partnership*

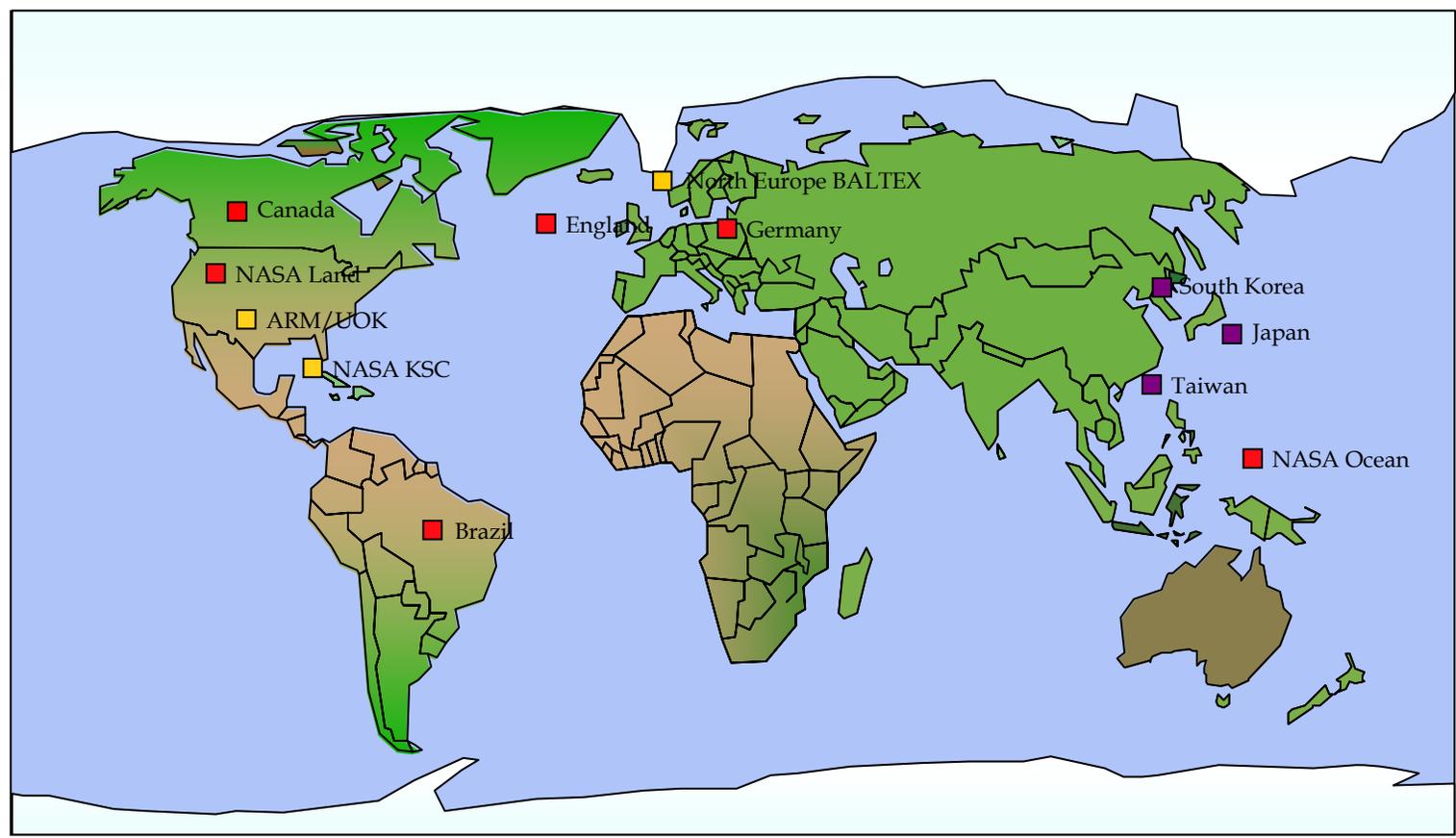
- *NASDA is NASA GSFC's primary partner with Requirements to provide:*
 - *Dual Precipitation Radar (DPR) Instrument*
 - *DPR I&T support at GSFC and TNSC*
 - *H-IIA Launch Vehicle (and I/F articles such as the PAF)*
 - *Launch Services at TNSC for launch of GPM Core Observatory*
 - *Logistics assistance in getting to/from launch site for the Observatory and GSE*
 - *Customs*
 - *Transportation*
 - *Public Relations*
 - *Logistics assistance for the launch site support personnel (i.e.-hotels, cars,etc.)*
 - *Partnership in the Science Team, Data Processing, Archive & Distribution, and Ground Validation Processes (Super Site)*

- *Other Potential Foreign Partnerships*

- *India/France Megha-Tropiques: Want to participate in GPM, details of participation need to be defined; launch schedule is 2005-6*
- *ESA: E-GPM was selected for phase A study*
- *Korea: We had good discussion with SNU, KMA and KARI, expect to establish broad range of partnership*
- *Saudi Arabia, Italy, Brazil*
- *Next page shows potential validation sites*

- **STATUS:** *NASA and NASDA soon will sign the GPM Letter of Agreement (LOA) for the formulation phase of the mission. (An MOU will be signed to cover Implementation Phase of the Project). Workshops, meetings and other forums are being used to establish partnerships with the other potential foreign partners.*





-  Supersite
-  Regional Rain Gauge Network
-  Supersite & Regional Rain Gauge Network



- **ITAR Constraints**

- GPM shall be ITAR Compliant

- GPM Observatory falls under the U.S. Munitions List (USML) of ITAR and is subject to ITAR rules and regulations.
 - Items considered to fall under ITAR controls are space-flight hardware and software, GSE, launch vehicles, ground stations (NASA STDN & DSN)
 - Parts, components, accessories, models, technical data, design, etc.
 - Sharing of information to a foreign constitutes an export, thus ITAR regulated.
 - A signed LOA/MOU will provide **some** latitude in information exchange which is limited to interface information
 - In some cases, we may need Technical Assistant Agreement (TAA) to transfer necessary items to the international partners
 - Project working with NASA GSFC Export Administrator/Transportation Officer
 - Periodic briefings to Project personnel to review ITAR, changes, and to address specific issues and questions pertaining to GPM
 - A Project ITAR Plan shall be generated

- Items to be reviewed for ITAR compliance

- All system level and interface level documents
 - Flight software, flight simulator, test equipments
 - Method of shipping Observatory and GSE
 - Hardware shipments independent of above
 - Drill templates, simulator, test/flight kinetic mounts, Payload Attach Fitting (test/flight), DPR test equipment, DPR



- **External Interfaces Requirements**

- *Provide Launch Services support (L2 Requirement 6.1 and 6.2)*
 - *Launch Vehicles: H-IIA (Core Observatory) and Taurus (Constellation Observatory)*
 - *Launch Sites: TNSC (Tanegashima Island, Japan), and Vandenberg Air Force Base, CA*
- *Provide a single point of contact source between GSFC, NASA HQ, other government agencies, and International Partners*
 - *Assure coordinated responses to the actions/issues in a timely manner between the parties to keep design and implementation efforts on track.*
 - *Create a formal structured process for traceability when addressing inquiries, actions, and requests*
 - *Implement tracking log called an Operation Control Letter (OCL) between GSFC and NASDA (and other foreign partners).*
- *Support meetings, workshops, conferences, reviews, etc.*
 - *Groups Internal to GSFC*
 - *Science Team, Ground Systems, Systems, Core Spacecraft, and Instrument Groups*
 - *Groups External to GSFC*
 - *International Partners (I.e.-NASDA, ESA)*
 - *NASA HQ*
 - *Other Government Agencies (I.e. NOAA)*



External Interfaces & Development Schedule

5/31/02

CY:	2002				2003				2004				2005				2006				2007			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
NASA-NASDA LOA for Formulation Phase				△ 9/30																				
NASA-NASDA MOU for Phase C/D								△ 10/1																
NASA-NASDA PIP							Draft △	Final △ 12/31																
NASA-NASDA DPR-S/C ICS							Preliminary △	Final △ 8/1																
NASA-NASDA S/C-H2-A ICS							Preliminary △	Final △ 8/1																
NASA-NASDA OAs																								△ 7/1
NASA-NASDA Missile System Prelaunch Safety Package																							Submitted to Range Safety Officer Project Office Approval △ 2/1 △ 6/15	
NASA - ESA LOA / MOU (TBD)																								
NASA-KOREA LOA/MOU (TBD)																								
NASA-ISRO LOA/MOU (TBD)																								
Other LOA/MOU (TBD)																								



- Acronyms:
 - DPR: Dual Precipitation Radar
 - DSN: Deep Space Network
 - ESA: European Space Agency
 - GPM: Global Precipitation Measurement
 - GSE: Ground Support Equipment
 - GSFC: Goddard Space Flight Center
 - I&T: Integration and Test
 - I/F: Interface
 - ICS: Interface Control Specification
 - ISRO: Indian Space Research Organization
 - ITAR: International Traffic in Arms Regulation
 - LOA: Letter of Agreement
 - MOU: Memorandum of Understanding
 - NASA: National Aeronautical Space Administration
 - NASDA: National Space Development Agency
 - OA: Operational Agreements
 - OCL: Operation Control Letter
 - PAF: Payload Attach Fitting
 - PIP: Project Implementation Plan
 - S/C: Spacecraft
 - STDN: Spaceflight Tracking and Data Network
 - TAA: Technical Assistant Agreement
 - TBD: To Be Determined
 - TnSC: Tanegashima Space Center (in Japan)
 - USML: U.S. Munitions List

