



# Landsat Global Archive Consolidation

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**USGS Landsat**

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**U.S. Department of the Interior**

**U.S. Geological Survey**

# Goals & Assumptions

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- Repatriate all internationally-acquired Landsat data
- Each station has data that will enhance the USGS archive
  - ◆ In the short term, some data may have higher science priorities
  - ◆ Each station has technical and non-technical challenges

# Thus Far...

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- **Discussed effort in detail with International Cooperators as much as possible**
  - ◆ LGSOWG, LTWG, international meetings, site visits, etc.
- **Requested station metadata**
  - ◆ validate estimate
  - ◆ establish scope of effort
- **Received metadata from nearly all stations (missing 4)**
- **Determined size of each station's archive**
- **Estimated concern for data maintenance for each archive**
- **Evaluated technical and non-technical challenges for each station**
- **Began requesting and receiving L5 data from various sources for a variety of reasons**

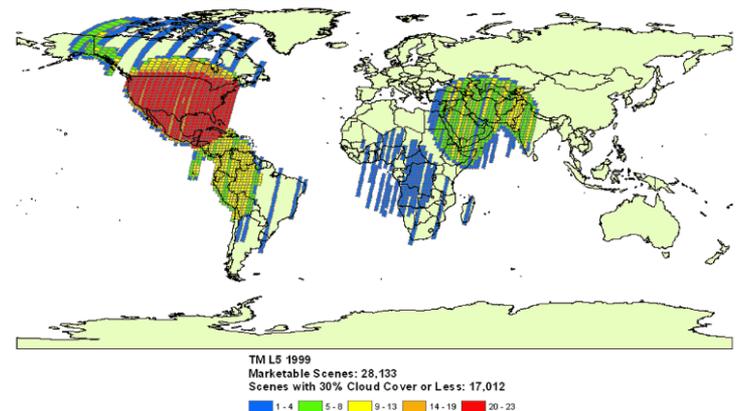
# How much data is out there?

ICs	Scenes (in 1,000s)	Unique to IC	% Unique
ESA: MTI/FUI/KIS/MPS	2,089	1,883	90%
Canada: GNC/PAC	532	242	45%
Australia: ASA/HOA	629	463	74%
Brazil	234	210	90%
China	449	409	91%
Japan	275	261	95%
Thailand	90	77	86%
Germany	87	61	70%
Ecuador	40	30	75%
India	51	1	98%
Pakistan	24	20	84%
Japan (L7)	21	7	35%
Indonesia	8	3	63%
<b>Subtotal</b>	<b>4,529</b>	<b>3,420</b>	<b>76%</b>
Argentina	195		
South Africa	154		
<b>Subtotal</b>	<b>4,878</b>		
Saudi Arabia	69		
Puerto Rico	42		
<b>Grand Total</b>	<b>4,989</b>		

## Mystery campaign stations:

- Ulaanbaatar, Mongolia
- Taiwan
- Libreville, Gabon
- Dubai
- O'Higgins, Antarctica
- Bishkek, Kyrgyzstan
- Nairobi, Kenya
- U.S. Air Force: 418 scenes

## TM L5 1999

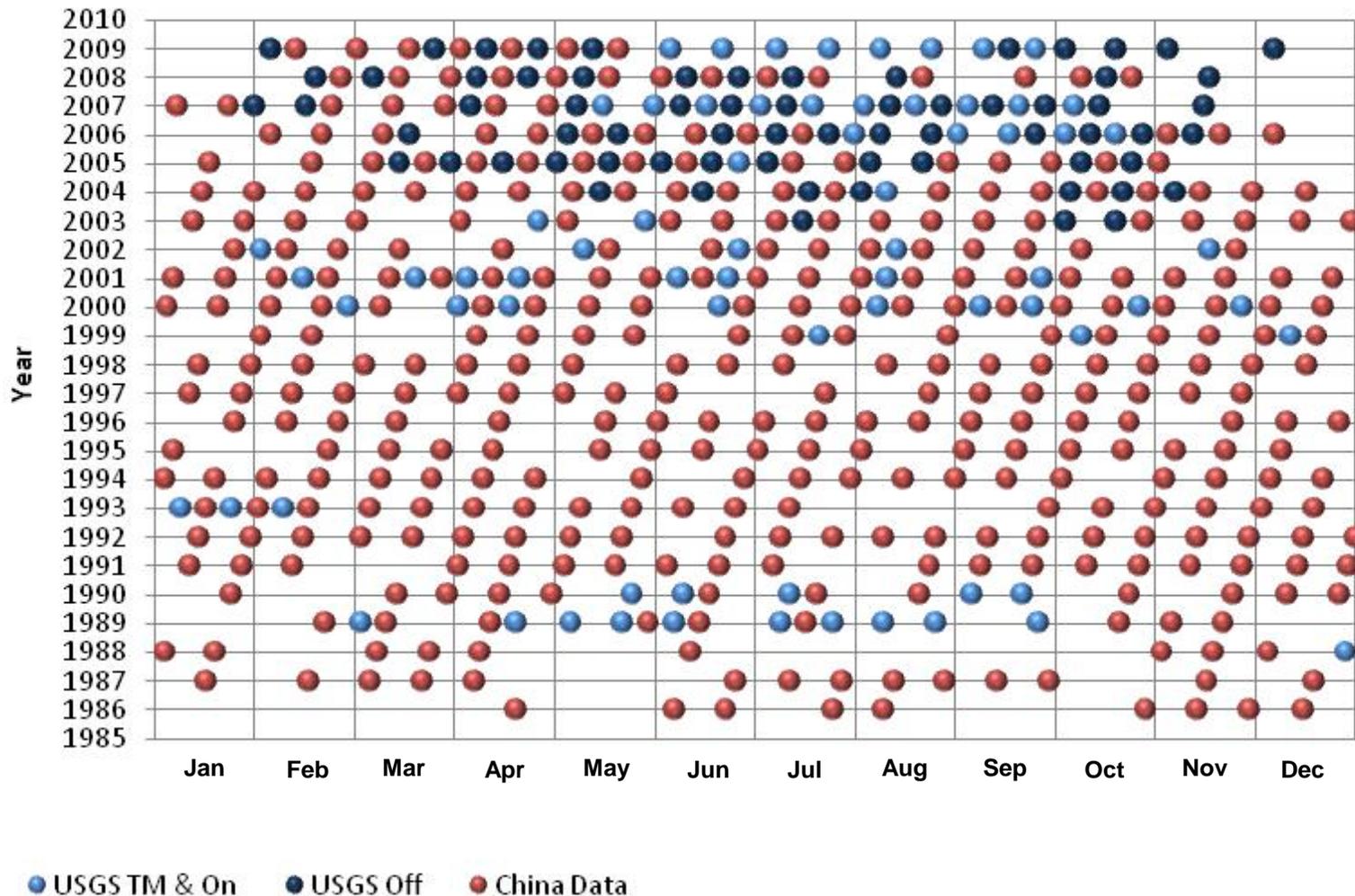


USGS

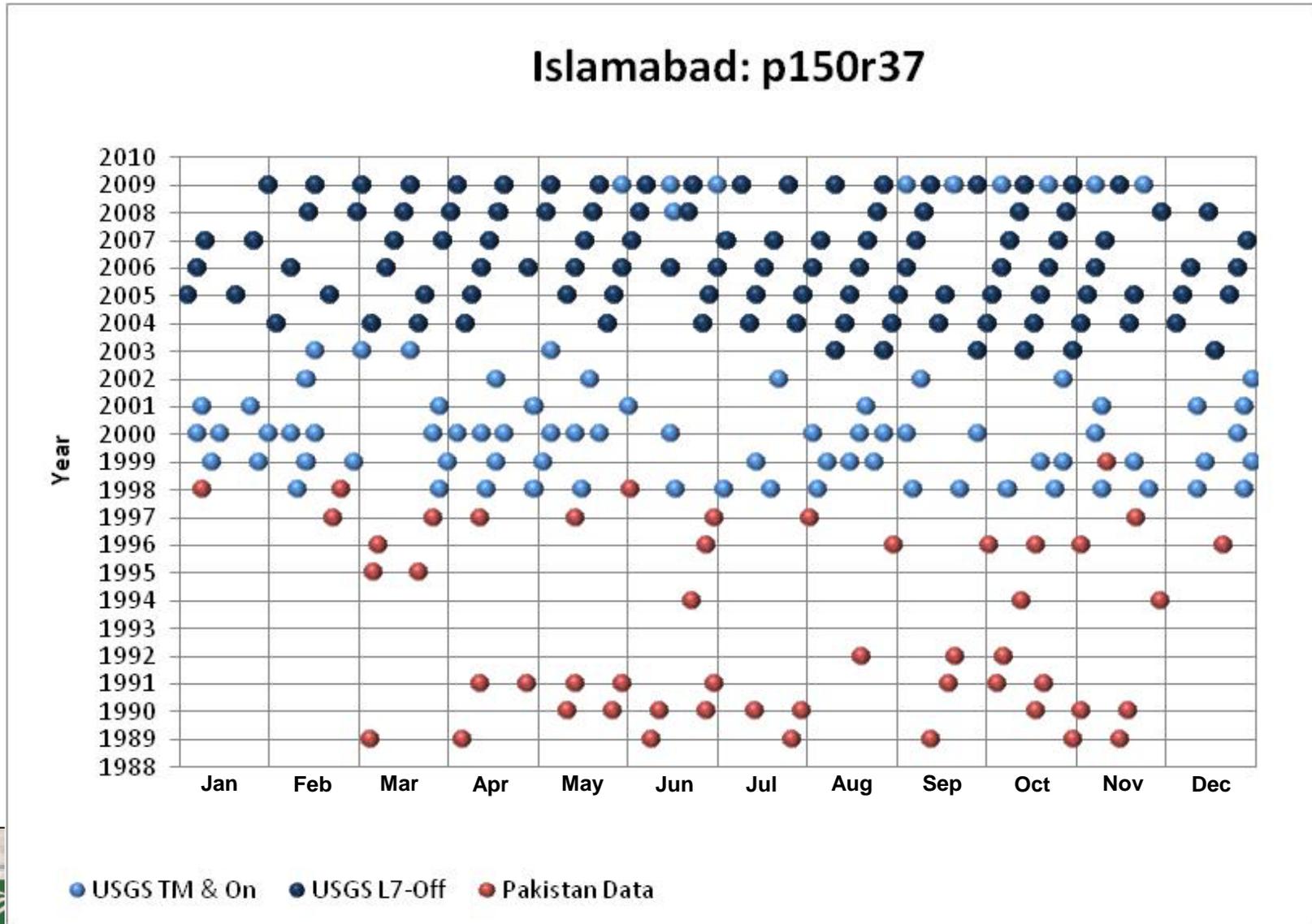
70

# Temporal Depth: large, active archive

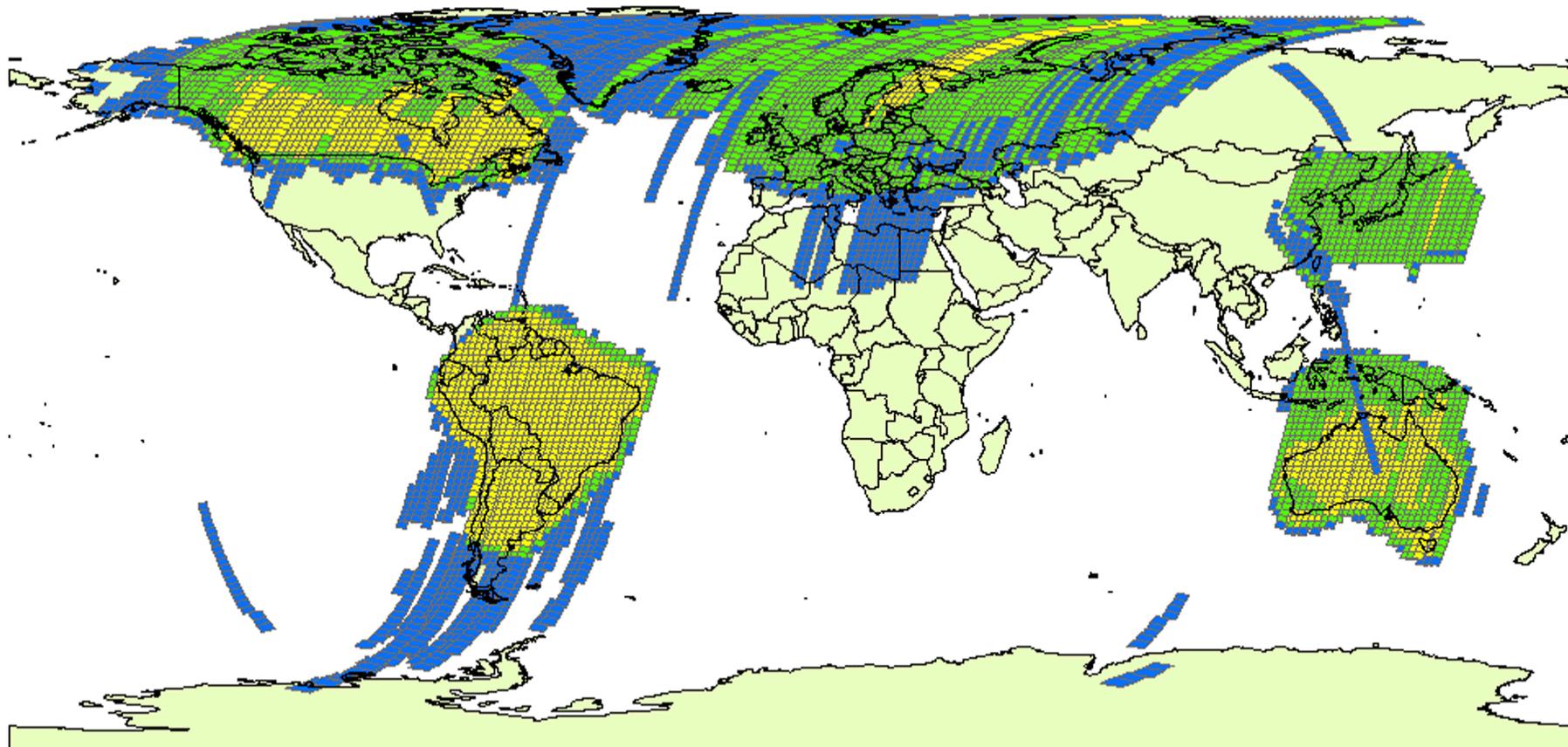
## Northeast of Ulaanbaatar, Mongolia: p128r025



# Smaller, historical archive



# L1-3 MSS Scenes Held Only at IGS (ASA, CUB, ESA, HAJ, PAC)



Acquisition Date Range: August 07, 1972 through March 31, 1983

273,756 Total L1-3 MSS Scenes Acquired by IGS

24,034 (9%) Total L1-3 MSS Scenes in both archives (IGS and EROS)

**249,722 (91%) Total L1-3 MSS Scenes only at IGS (not at EROS)**

7,466 Unique L1-3 MSS Path/Rows

2,405 (32%) Unique L1-3 MSS Path/Rows in both archives (IGS and EROS)

5,061 (68%) Unique L1-3 MSS Path/Rows only at IGS (not at EROS)

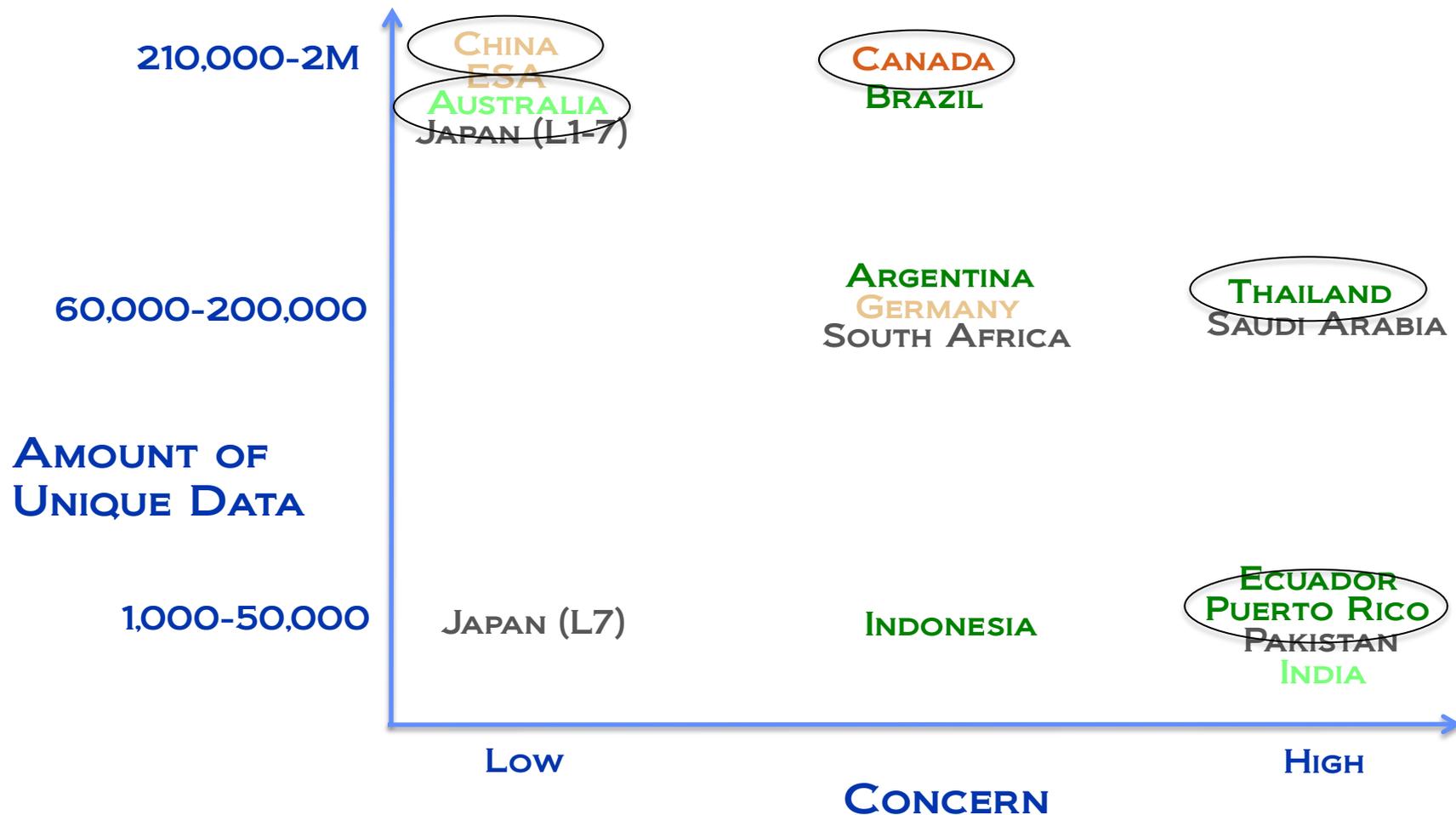
1 - 9    10 - 49    50 - 149

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# Science Team Concerns

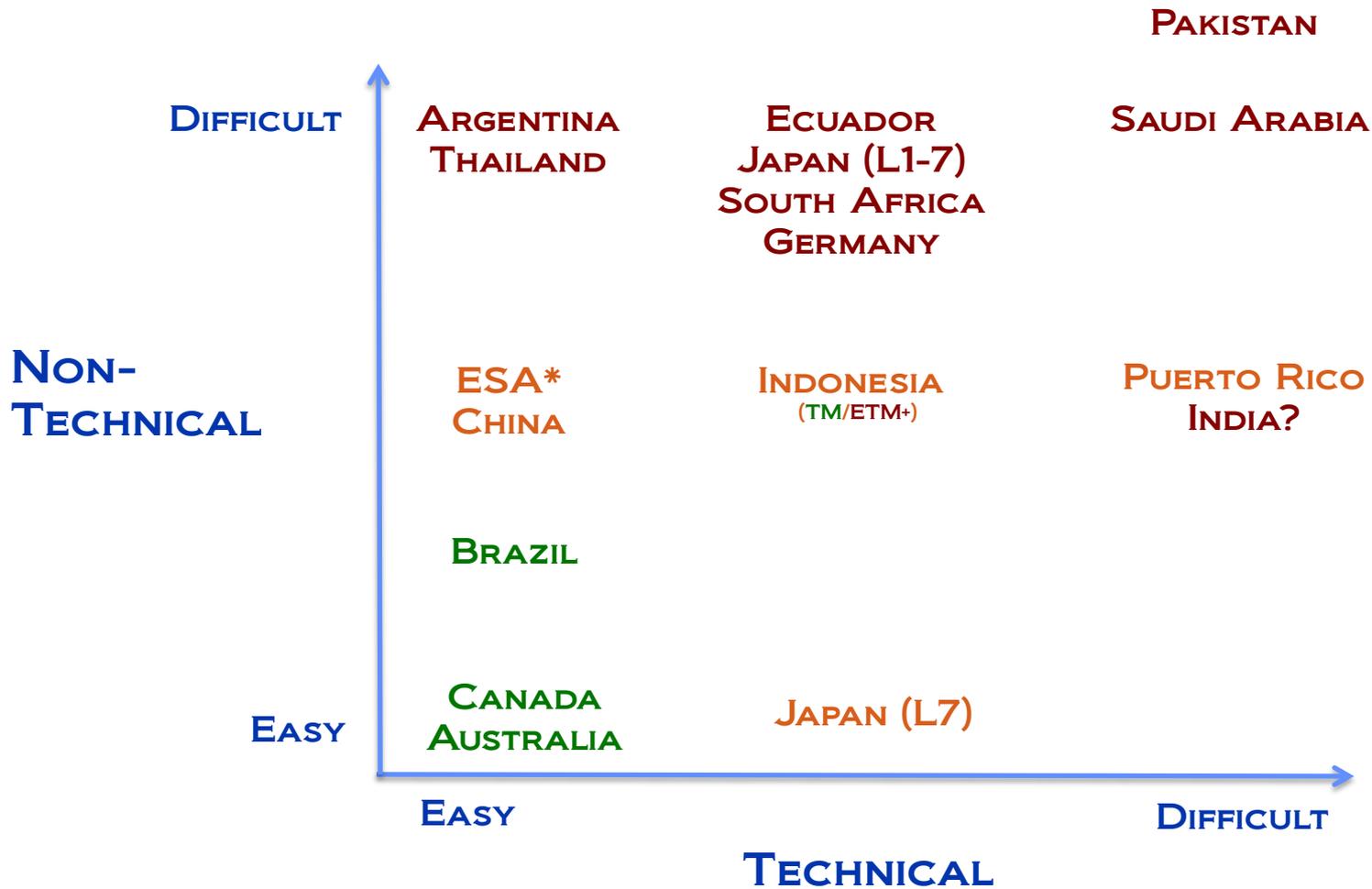


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# Realistic Acquisition



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# L5 Data Received

L5	2009	2010	
	Scenes	Scenes	Total
BJC	187		187
BKT	2,370		2,370
CHM	671	1,281	1,952
COA	19		19
CUB	874		874
CUB	2,526	774	3,300
GLC	7,242		7,242
GNC	51		51
IKR	7,606		7,606
JSA	1,340		1,340
KHC	6,414	2,042	8,456
MGR	5,658		5,658
MLK	865		865
MOR	6,872		6,872
MPS	3,696		3,696
MTI	820		820
PAC	144		144
	47,355	4,097	51,452

- **KaShi:**
  - ◆ Sends all acquisitions
- **Moscow, Irkutsk, Magadan:**
  - ◆ Sends all acquisitions
- **Stations send data for specific Science requests**
- **Brazil:**
  - ◆ Large request in prep – 30,000 scenes for Tropical Forest Carbon

# Current Activities

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- **Thailand**

- ◆ MSS tapes inaccessible
- ◆ Action: Sending letter to officially request the data

- **China**

- ◆ In the midst of archive transcription
- ◆ Action: Sending letter to request their 'old' tapes

- **Australia**

- ◆ In the midst of archive transcription
- ◆ Mixed missions on tapes
- ◆ Action: Sending letter promises to destroy other mission data

- **Canada**

- ◆ Sending all newly acquired data to EROS
- ◆ Technical discussions to transfer historic data are underway

# Current Activities, con't

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- **Puerto Rico**

- ◆ Offered to send old tapes they could not read
- ◆ Action: UPR to send test tapes

- **Pakistan**

- ◆ Offered to send old tapes they could not read
- ◆ Officials determined that data could not be sent out of the country

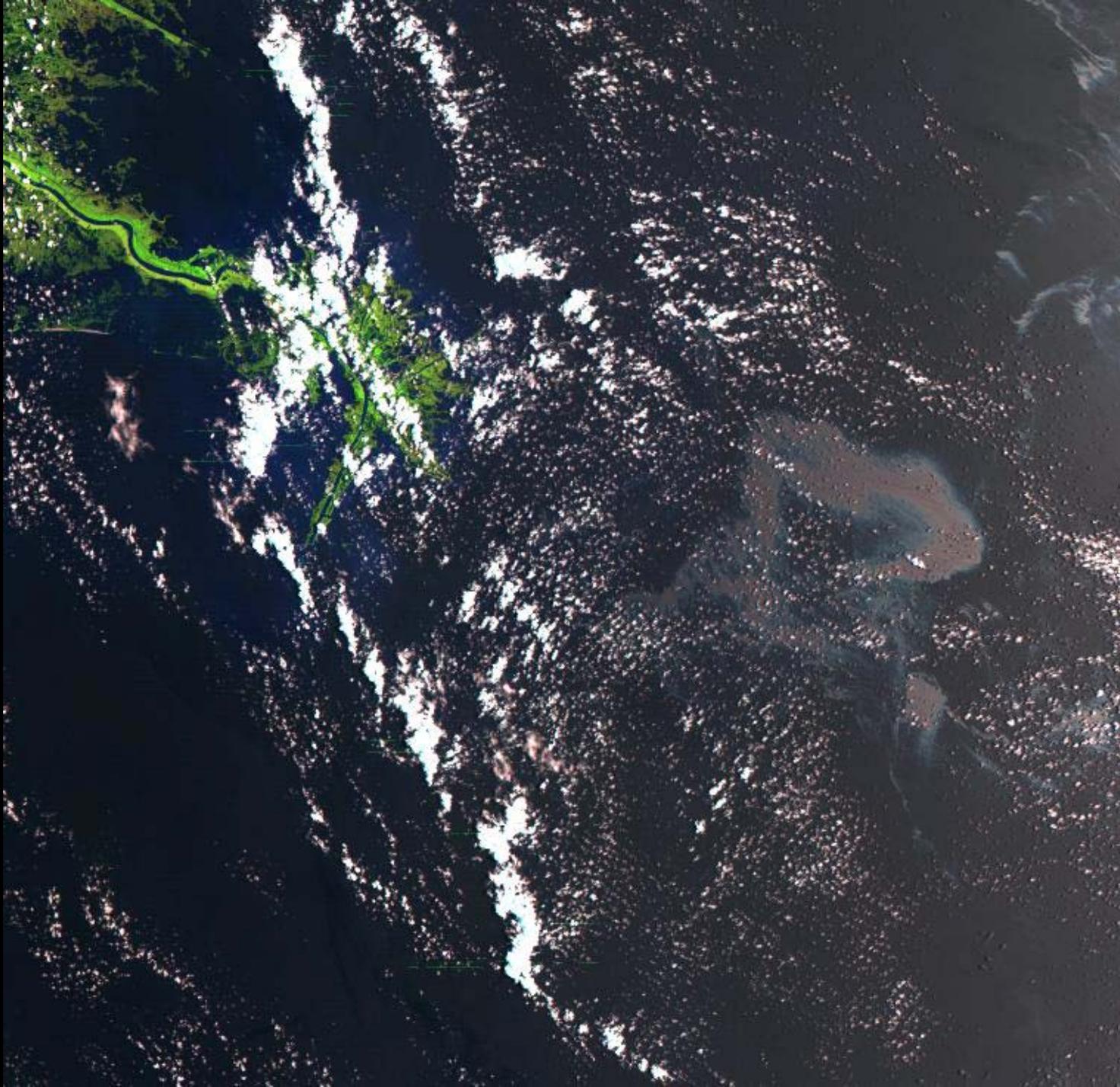
- **Ecuador**

- ◆ Offered to send old tapes they could not read
- ◆ Landsat awarded USGS grant to acquire data
- ◆ Ecuador's DOD will not release data
  - Continuing efforts through diplomatic channels

# The Way Forward

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- **Request data from willing ICs**
  - ◆ Prioritize based on Science Need
- **Pursue current opportunities**
  - ◆ Take advantage of new ones that arise
- **Continue working with all stations**
  - ◆ Recognizing
    - MSS data is likely the most threatened
    - Most of the data is TM
    - Some political issues cannot be overcome: out of our control
    - Some technical issues may not be overcome, although at least we'll have made the attempt



10 June  
2010

# Acronym list

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**IC: International Cooperator**

**LGSOWG: Landsat Ground Station Operators Working Group**

**LTWG: Landsat Technical Working Group**

## Ground Stations

- ◆ ASA: Alice Springs, Australia
- ◆ BJC: Beijing, China
- ◆ BKT: Bangkok, Thailand
- ◆ CHM: Chetumal, Mexico
- ◆ COA: Córdoba, Argentina
- ◆ CPE: Copaxi, Ecuador
- ◆ CUB: Cuíaba, Brazil
- ◆ FUI: Fucino, Italy
- ◆ GLC: Gilmore Creek, Alaska
- ◆ GNC: Gatineau, Canada
- ◆ HOA: Hobart, Australia
- ◆ IKR: Irkutsk, Russia
- ◆ JSA: Johannesburg, South Africa
- ◆ KIS: Kiruna, Sweden
- ◆ KHC: KaShi, China
- ◆ MGR: Magadan, Russia
- ◆ MLK: Malindi, Kenya
- ◆ MOR: Moscow, Russia
- ◆ MPS: Maspalomas, Spain
- ◆ MTI: Matera, Italy
- ◆ PAC: Prince Albert, Canada
- ◆ UPR: University of Puerto Rico