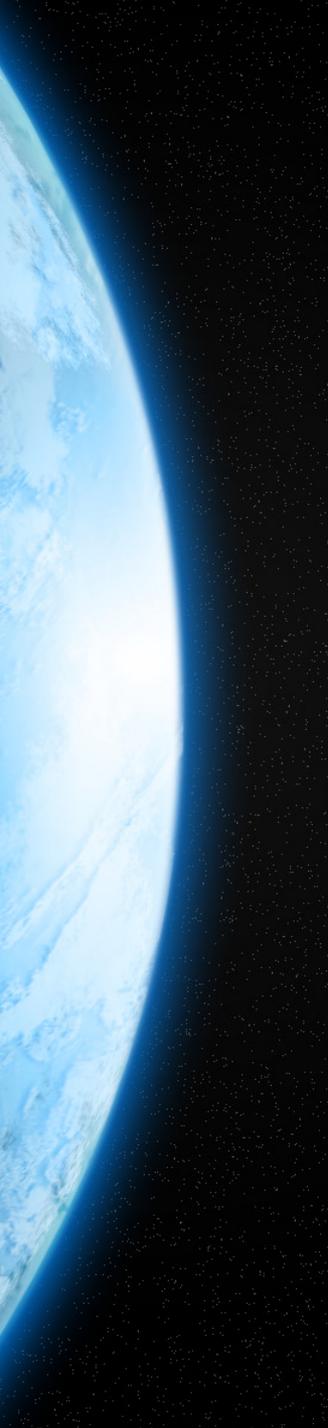


A Brief Survey of Remote Sensing Law Around the World

*Prof. Joanne Irene Gabrynowicz
Editor-in-Chief Emerita, Journal of Space Law
Visiting Professor, BIT School of Law
Professor Emerita, University of Mississippi*

*Department of Commerce/National Oceanic
and Atmospheric Administration
Advisory Committee on
Commercial Remote Sensing*

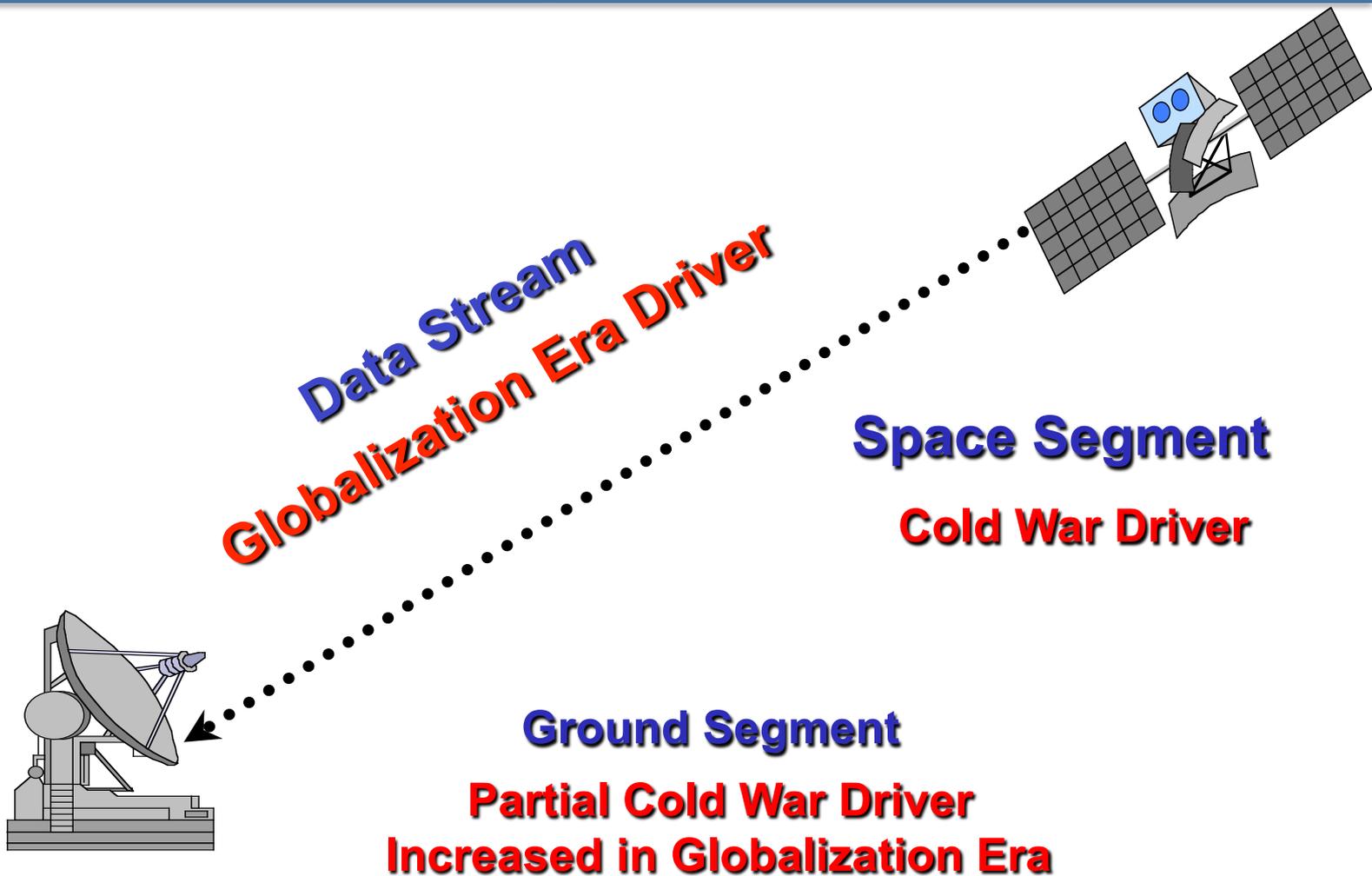
5 December 2014



Background: Participants and License Types

- **Different kinds of licenses**
 - **Satellite operations**
 - **Ground stations**
 - **Data use**
 - **Space farers and emerging spacefarers**
 - **Shifting dichotomy**
 - **Spacefarers/Developed Nations and Nonspacefarers/Developing Nations**
 - **Some developing nations are now spacefarers**
 - **Algeria, Brazil, Nigeria, e.g.**
-

Different "Drivers": Space Segment, Ground Segment, Data Stream



Background: Kinds of Remote Sensing Law and Policy

- **General, global observations**
 - Disasters Charter, e.g.
- **Major remote sensing nations**
 - **Space segment focused**
 - Canada, Europe, France, India, Japan, Russian Federation, e.g.
- **Non-remote sensing nations**
 - **Ground segment focused law**
 - UK, e.g.

The Big Picture: Land Data Distribution Policies

1972 - 1984

1984 - 1992

1992 ~ 2004

Foreign policy

Commercial policy

“Commercial” and
environmental policy



Allies and
nonaligned
nations

Commercial
market

National security and
environmental users

Government

Quasi-private

“Private” and
Government

Why

To

By

The Big Picture: Distribution Policies and Rationales

~ 2004 - Present

Survival of, and economic justification for, space systems. New technologies, operations could change this.



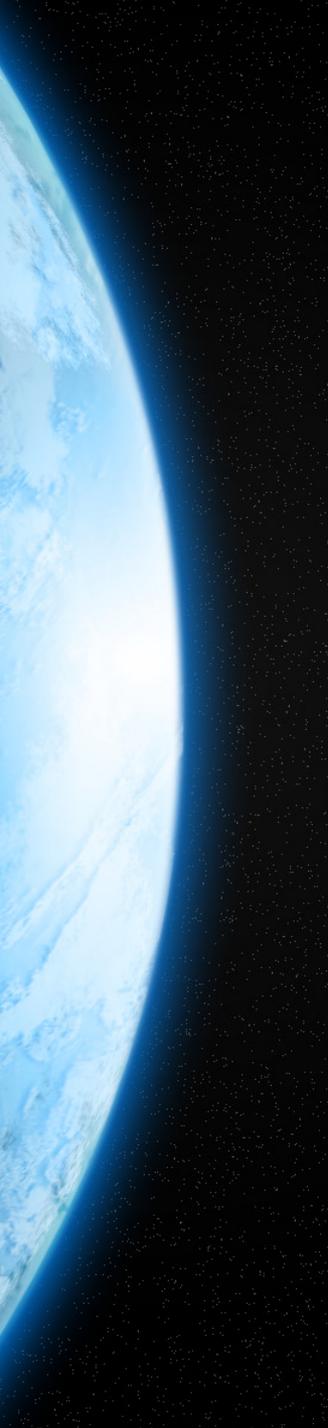
As expanded a user base as possible within increased national security restrictions. Low to medium resolution data = open access and free of cost. High resolution data = restricted and at commercial prices.

By whomever can succeed, but tendency to be some form of government world-wide. New technologies, operations could change this.

Why

To

By



General Observations

- **Driving force of legislation is compliance with treaties and international obligations**
 - **U.S. law is apparent standard**
 - Not to the "letter" but with due consideration
 - **Hybrid public - private environment**
 - Law will not change this
 - **Space segment vs. ground segment**
 - **Satellite vs. data focus**
 - U.S. vs. Europe, for example
 - **Growing major trend**
 - medium to low res data open access and free of cost
 - hi-res data restricted and at commercial prices
-

Brazil and China

- **Chinese Brazilian Earth Resources Satellites (CBERS)**
- **Serial Protocols and MOU**
 - Wide ranging provisions for implementation, operations, IP, ground stations, data commercialization criteria, training specialists, applications, dispute resolution, international cooperation, etc.
- **Data policy**
 - Governed by contract, consultations, commercial agreements, etc.
 - Can agree to distribute data free of charge
 - Timely data sharing for natural disasters



- **Data Access Control Policy**
 - “transactional”
- **Operations license: public, private, hybrid**
- **Case-by-case review**
 - “shutter control”
 - tasking records
 - notify re: substantial foreign agreements and change in operational characteristics
 - need permission to transfer ownership, etc.
- **Very similar to U.S. law**





Europe

- **Operations and data inextricably intertwined**
 - No private systems or licensing, per se
 - "commercial" means what is done, not who does it
 - Hybrid public - commercial systems
 - Government systems operate commercially
- **Data driven, but growing focus on space segment**
- **Multilateral agreements on satellite-by-satellite basis, e.g., Envisat, ERS-1, ERS-2, etc.**
- **Maastricht Treaty, agriculture and remote sensing**

Joint Principles Sentinel Data Policy

- **Objective: maximize beneficial use of EO data and information**
- **Anybody can access**
 - no difference between public, commercial, scientific, European or non-European users
- **Free data licenses**
- **Available free via a "generic" online access**
 - subject to user registration, accepting terms and conditions
- **Additional tailored access modes and conditions**



- **Regulation (EU) No 911/2010 of the European Parliament and of the Council of 22 September 2010**
 - on the European Earth monitoring program *Copernicus* (previously known as Global Monitoring for Environment and Security GMES)
 - Objective: provide data and information services for environmental and security applications tailored to user requirements



- **Data Availability Directives:**
 - Infrastructure for Spatial Information in the EC, “INSPIRE Directive” (2007/2)
 - Continues to evolve, guidelines (2012)
 - “PSI Directive” (2003/98)
 - “Aarhus Directive” (2003/4)
- **Directives on IPR and data protection:**
 - “Copyright Directive” (2001/29)
 - “Database Directive” (96/9)
 - “Protection of Privacy Directive” (2002/58)
- **Metadata: Data Specs; Data Service and Sharing; Network Services**



- **Data driven**
 - **Focus: return on investment of public funds**
 - **Open civil regime**
- ***SPOT* considered "privatized" not "commercialized"**
- **LOI no. 2008-518 du 3 juin 2008 relative aux opérations spatiales**



France

- **“primary space-based data” must be declared to the administrative authority**
 - Determination is made that data does not harm foreign policy or defense interests
 - Measures may be prescribed to safeguard these interests
 - 200,000€ fine for noncompliance
- **Provisions do not apply to**
 - Ministry of Defense activities
 - Satellite operations
 - Data reception



Germany

- **Three kinds of licenses**
 - satellite operation
 - general data distribution
 - specific data transactions
- **Two-tiered “security data policy” analogous U.S.**
- **National security; commercial secondary**
 - Data distribution mechanism creates system in which operator (“Betreiber”), distributor (“Datenanbieter”) or operator/distributor (“Betreiber zugleich Datenanbieter”) will be licensed
 - Required to implement a “geomatrix” provided by government
 - includes check list to determine transaction sensitivity
 - potential liability if a distribution mistake is made
 - Penalties may include incarceration.



2011 Revised Remote Sensing Data Policy (RSDP)

- **Comprehensive; space and ground segment driven; catalyzed by availability of hi-res imagery on-line**
- **Low resolution data 1 meter and coarser is unrestricted**
 - **Distributed on “non-discriminatory” and “as requested” basis**
- **High resolution data 1 meter and finer is restricted**
 - **Still screened and cleared by appropriate agency**
- **No longer need clearance to use data**
 - **Government ministries, departments, R&D institutions, educational and academic institutions**
 - **public sector, autonomous bodies**
- **Private sector agencies supporting development**
 - **Need recommendation of a government agency**



- **2008 Japan's Basic Space Law**
 - establish data use system in 1 - 2 years
 - Still pending; impacted by frequent political changes and natural disasters
 - Collect User Opinions
 - User and supplier coordination committee
 - More User-Friendly Satellite Data Use System
 - make the most of private sector current assets and know-how
 - Make Standardized Data Policy
 - balance limits on distributable resolution and price with publicly funded data as widely as possible
 - “analyzed information” policy
 - “Guardian of the Environment” concept
- **2010 Important Measures in Space Activities: Strategic Space Policy to Promote Japan's Growth**
 - Promotes
 - use of remote sensing satellites to enhance economy and environment
 - increased utilization of data



Japan

- **Proposal for standalone remote sensing law not accepted until recently**
- **3rd Basic Plan for Space Activities to be adopted in December 2014**
 - **Provisions**
 - **Data Policy Act**
 - **Catalyzed by successful launch of commercial high resolution satellite**
 - **Space Activities Act**
- **Space Activities Act will go to the Japanese Diet in 2016 at the earliest**
- **All subject to pending general election**



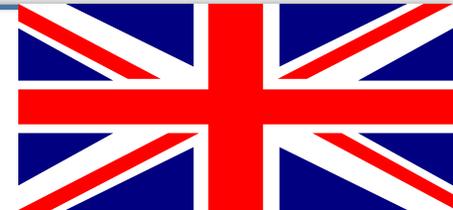
Russian Federation (CIS)

- **Resolution higher than 2m per pixel images of Russian territory in process of being legalized**
 - “restricted areas” specially designated by military and Federal Security Service will remain classified
- **Sale of high resolution satellite imagery**
 - Historical conflicts between intelligence and commerce
 - Requests for lists of available images and image orders have been denied, delayed and canceled due to national secrecy
 - Particularly pre - 1992
- **Operations**
 - Broad federal legislation
 - Licensing, certification, liability, safety, insurance and government control
 - License required, few specifics: insurance
 - Protects IP and commercial secrets of foreign entities operating under Federation's jurisdiction
 - RS includes environmental monitoring and meteorology
- **Different rules over time, e.g., SPIN, ALMAZ, etc.**



United Kingdom

- **Ground-segment focus**
 - Space segment focus follows later
- **House of Lords**
 - “Main effort should be ground and user segment”
 - Specialize in radar
 - National data distribution network
 - Support postgraduate education in remote sensing and digital cartography
- **National legislation: Space Act**
 - No specific mention of remote sensing
 - Authorizes government to require licenses



United States

- **1992 Land Remote Sensing Policy Act**
 - Public sector and environmental focus
 - Public and private distinction
 - Commerce Department licenses and regulates private systems
 - Company must disclose amount of government resources that went into launch or operation of the system
 - Fully government funded: all raw data available on nondiscriminatory basis
 - Entirely privately funded: data provided according to reasonable commercial terms and conditions. Data must be made available to a "sensed state"
 - Partial government support: some access to raw data on nondiscriminatory basis
 - » Case by case basis with provisions included in license



U.S. Remote Sensing Data Policy

The Public-Private Spectrum for Data Access Policy

Public

Hybrid

Private



All Tax Money

Public and Private Money

All Private Money

Full nondiscriminatory access at cost of reproduction/free

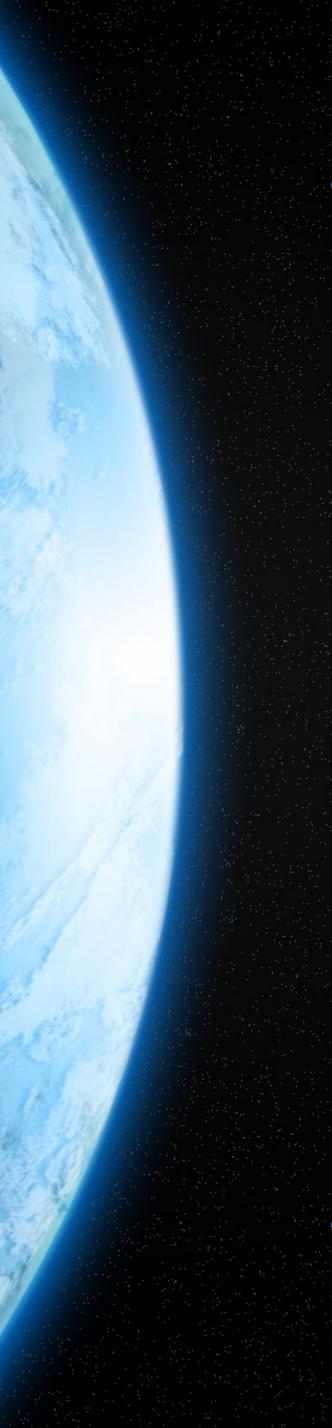
Case-by-case determination

Access to sensed states only on commercial terms



Looking Ahead: New Phase?

- **Commercial, Private sector**
 - **New technologies, operating processes**
 - **Near real time**
 - **Satellite optical and radar imagery acquired within hours of collection with agreement for first priority charges. e.g.**
 - **Constellations**
 - **24 earth imaging satellites at 1/3+/- meter, e.g.**
 - **Smallsats**
 - **Six month review period after operations begin**
- **Governments**
 - **More bilateral agreements**
 - **Brazil and China, e.g.**
 - **IGOs**
 - **GEO, e.g.**
 - **Continuing low cost to free of cost medium to low resolution**
- **New data distribution policies? Rationales?**



Thank you.

**Questions?
Comments?**
