Policy Challenges of SmallSats for Earth Observations

Case study from the United States

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The re-emergence of smallsats

- **SWF** is a private, endowed operating foundation dedicated to the secure and sustainable use of space
- *Why space sustainability?* Increasing reliance on space assets coupled with potentially destabilizing trends
- Re-emergence of smallsats in a rapidly diversifying and growing space domain
- Euroconsult Feb. 2015 study: 510 smallsats to be launched in next 5yrs.
- Smallsats turning into go-to for actors within the public, academic, and private sectors
Beyond a demonstration platform?

- Proposals to do more beyond tech demonstration and hands-on training: fill research and observational needs
- Advantages include: higher revisit time, shorter development cycles, lower launch costs
- Emerging challenges
  - No agreed-to technical definition, few standards
  - Research-to-operations issues
  - New, disparate community of developers
  - Regulatory implications
- Two focus areas for operational discussion:
  - Weather
  - Imaging
Snapshot of the diversity of players
Promoting Cooperative Solutions for Space Sustainability

Policy framework

• National Space Policy – June 2010
• Commercial Remote Sensing Policy - April 2003
• Also: agency-specific guidance (e.g. NOAA Partnership Policy - 2005), related laws, statements, and memoranda

Common themes

• Certain tasks defined as governmental responsibility (ex. weather data as a public good)
• Private sector and academia as partners: guidance to use capabilities/services to “maximum practical extent”
• National security considerations take precedence when it comes to imagery
• Commitment to full and open data access (public/international)
Potential:

• Capabilities developed/launched/operated by private sector as data source for use in development of official models, forecasts, and other weather-related information products

Key challenges:

• Data quality, validity and reliability (including archiving)
• Access/reusability restrictions
• Demonstration of capability
• Definition of roles

Right: Depiction of GPS radio occultation. Source: PlanetiQ website
Integrating new solutions

Above: Slide from presentation of Dr. Stephen Volz, NOAA, during Goddard Memorial Symposium, Feb. 2015
New questions – Imagery/Geospatial

Potential:
- Capabilities incorporated into growing suite of data sources to fill specific U.S. government intelligence needs, allowing for more efficient tasking of national reconnaissance satellites

Key challenges:
- Defining the mission – when is good enough good enough?
- National security considerations
- Access/ reusability restrictions w/ respect to allies
- Regulatory/ licensing challenge
Ongoing efforts

Legislation
• Budget process
• Commercial Remote Sensing Act
• Weather Forecasting Acts

Policy Reviews
• Commercial Remote Sensing Policy (expected 2015)
• NOAA Commercial Data Policy (expected 2015)

Agency Efforts
• Workshop on NOAA Consideration of Commercial Satellite Data
• NGA-issued RFI: NextGen Commercial Imagery Strategy and Architecture to Acquire Commercial Imagery Products and Services
• Future architecture studies

Multi-stakeholder Discussions
• USGIF Working Group on Small Sats
• Leadership statements, op-eds, media discussion
Observations

• Push and pull elements at play
• Capabilities considered promising to **augment** not replace national systems
• Cultural, paradigm shift – traditional roles being questioned
• Result will be a mix of approaches
• Examples from other industries/ other kinds of data may suggest way forward
• Pending questions about real market opportunities/ response – *Is this another bubble? Are there enough non-government customers?*
• Space sustainability challenge – how to take advantage of the positive while meeting regulatory/oversight responsibility
• International repercussions to decisions taken at national level
THANK YOU

Comments? Questions?
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