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Advisory Committee on Commercial Remote Sensing (ACCRES)

Thursday, October 18, 2018 – 9:00 AM – 4:00 PM

District Architecture Center, 421 7th Street NW, Washington DC 20004



Meeting Attendees

- **Gil Klinger (Incoming Chair)**, Raytheon Company
- **Herb Satterlee (Outgoing Chair)**, Unaffiliated, formerly of McDonald, Dettwiler and Associates Information Systems, Inc., (U.S. Subsidiary)
- **Jason Andrews**, Spaceflight Industries
- **John Bellardo**, California Polytechnic State University
- **Gregory Black**, National Geospatial-Intelligence Agency
- **Sima Fishman**, Euroconsult USA
- **David Germroth**, XPressSAR
- **Todd Harrison**, Center for Strategic and International Studies
- **Henry Hertzfeld**, Space Policy Institute, George Washington University
- **Adil Jafry**, Chandah Space Technologies
- **Michelle Kley**, Maxar Technologies
- **Bhavya Lal**, Institute for Defense Analyses
- **David Langan**, Umbra Lab, Inc.
- **Tony Lin**, Hogan Lovells
- **Anne Hale Miglarese**, Radiant Earth
- **Brian Weeden**, Secure World Foundation
- **Joseph Koller (alternate for Jamie Morin)**, The Aerospace Corporation
- **James Uthmeier**, Senior Policy Advisor, Department of Commerce
- **Mark Paese**, Deputy Assistant Administrator for Satellite and Information Services, NOAA
- **Tahara Dawkins**, Director of Commercial Remote Sensing Regulatory Affairs and Committee Designated Federal Official, NOAA
- **Glenn Tallia**, Office of General Counsel, NOAA

Meeting Minutes

24th Meeting of the ACCRES Committee

ACCRES Welcome & Introduction from the Chair – Herb Satterlee & Gil Klinger

- Herb welcomed the Committee for its second meeting of the year
- He also welcomed new members and the audience and introduced incoming Chair Gil Klinger
- Gil has been a central voice in the commercial remote sensing industry since its inception
- Gil thanked everyone for attending the meeting. His request for the Committee was the think about what would enable NOAA to make the greatest progress.

ACCRES Introduction – Mark Paese

- Mark Paese welcomed the Committee back for the 24th ACCRES meeting. Mark is currently the Deputy Assistant Administrator for Satellite and Information Services (NESDIS) at the National Oceanic and Atmospheric Administration (NOAA).
- Mark congratulated NOAA licensees who have recently had successful launches. Space X has launched as many as 10 Falcon 9 vehicles carrying a numerous satellites only since the last ACCRES meeting in April.

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- Orbital Sidekick and Cal Poly also had successful launches.
- Additionally, we look forward to seeing 22 additional licensees launch over another 67 additional satellites by the end of this year.
- Mark introduced James Uthmeier, who followed Mark with the opening remarks. James is a Senior Policy Advisor at the Department of Commerce.

Opening Remarks – James Uthmeier

- James thanked Mark for the introduction and the members and audience for attending the 24th meeting of the Advisory Committee on Commercial Remote Sensing (ACCRES).
- Secretary Ross sends his regards. He and the Department recognize that we have got to find new ways to succeed in this industry.
- There are a series of initiatives Commerce has been working on. One is the new proposed rule (draft regulations currently under review), which will be more permissive.
- Commerce has been working hard to create a one stop shop for space, which would include the Commercial Remote Sensing Regulatory Affairs office and the Office of Space Commerce. The work of ACCRES will continue within the new office. In an effort to make this happen, the new Space Act was sent to the Hill and will be discussed at the October 23rd National Space Council Meeting. The Department has also been holding weekly meetings to discuss all space activities within Commerce.
- James also welcomed new members to the Committee:
 - **Gil Klinger**, the newly appointed ACCRES Chair.
 - **Dr. John Bellardo**, Professor at the Cal Poly, which holds the highest number of NOAA licenses of any university
 - **Gregg Black** of the National Geospatial Intelligence Agency
 - **Sima Fishman**, Managing Director of Euroconsult here in the US
 - **Dr. Henry Hertzfeld**, Director of the Space Policy Institute at GWU
 - **Tony Lin**, Counsel at Hogan Lovells, he has represented many clients through the NOAA, and other governmental satellite licensing processes
 - **Anne Hale Miglarese**, CEO of Radiant Earth, and
 - **Jamie Morin**, Vice President of the Aerospace Corporation and Executive Director of the Center for Space Policy and Strategy.
- There is a push at the Department to coordinate initiatives to bring new market participants and customers into the U.S. space sector. Among other means to do so, Commerce will be hosting a Summit they are co-hosting with other agencies for investors, lenders, and others.
- Finally, James said NOAA would like to formally thank the Committee for submitting the recommendations and reports for last year's priorities, especially Herb who coordinated all those efforts for the past couple years as the outgoing Chair.
- James looks forward to hearing the Committee's thoughts and advice at this meeting.

Workshop Outbrief – Tahara Dawkins

- CRSRA hosted a 3-day workshop for prospective and current licensees. The workshop included speakers throughout the U.S. Government, and the International Telecommunications Union (ITU).
- Many companies who haven't yet applied were able to come to the workshop to learn about the licensing process.
- In terms of review and response time, the commercial remote sensing licensing process is somewhere in between other licensing processes. For example, the Bureau of Industry and Security (BIS) receives approximately 800 export license applications annually; these are adjudicated within an average of 22 days. In

contrast, the Federal Communications Commission (FCC) license reviews can have a much lengthier timeline (up to 7 years in some cases), and entail higher costs. CRSRA hopes to continue hosting more events like the workshop.

Consortium for Execution of Rendezvous and Servicing Operations (CONFERS) Update – Brian Weeden

- CONFERS is an initiative launched in November, 2017 to develop technical standards for satellite servicing. It is an international effort that currently has 14 member organizations and 18 pending applications. The members' overall goal is to alleviate excessive regulations and focus on other actions promoting growth in the satellite servicing industry.
- The group held three workshops, with the last one held in Bremen, Germany at the end of September, and included representatives from a range governmental entities (U.S. Government, Japanese Space Exploration Agency, and the UK Space Agency)
This year, CONFERS drafted guiding principles. There is an upcoming membership vote to confirm the list of principles (majority/minority vote). In parallel, on November 8th, CONFERS will hold a Global Satellite Servicing Forum with a policy and regulatory panel on satellite servicing.
- CONFERS will next be working on technical standards. As they start their second year of operations, they will shift from discussing rendezvous and proximity operations to other satellite servicing operations.

NOAA Status Update on Proposed Rule Making – Glenn Tallia

Glenn, updated the group about current activities in his office. The General Counsel previously updated the commercial remote sensing regulations in 2006; however this was not a top to bottom rewrite as they have done for this regulations rewrite.

- Commercial remote sensing is a booming area of the satellite economy and with \$50 billion of venture capital committed to space, Secretary Ross is personally invested in this process.
- The first step in the rewrite process was publishing the Advanced Notice of Proposed Rule-Making (ANPRM), which asked the public specific questions regarding commercial remote sensing licensing, e.g., insurance and reduction of risk, etc. The ANPRM was published June 29th and the comment period ran through the end of August.
- NOAA received 10 comments, many of which were focused on similar issues, e.g., for greater transparency in the licensing process, and transitioning the process from a "one size fits all" model.
- Using the public comments as a point of departure, Glenn's team drafted an entirely new set of regulations. The team considered general feedback and specific comments from the industry. The revised rules streamline the process, and acknowledge new technologies available in the commercial remote sensing sector.
- The draft moved onto the Department of Commerce for approval and then to OMB for review by other agency partners. OMB has 90 days to complete its review. After OMB clears the rule, NOAA will publish the proposed rule in the Federal Register for comment.
- NOAA's goal is to publish the final rule by the end of 2019.

Regulatory Reform Recommendations – Task Group Report Out, Michelle Kley

- The task group received the draft proposed rules a week prior to the ACCRES meeting. They had been planning on providing recommendations based on the current regulations, but are now focused on the new baseline and framework in the current draft.
- The Task Group plans to report out recommendations and additional feedback at the next ACCRES meeting. after they have had more time to review the draft.
- **Task Group Volunteers:** Bhavya Lal, David Germroth, Gregg Black, Tony Lin, David Langan, and Michelle Kley (lead)

- **ACTION:** Review the draft proposed rules and provide recommendations/comments to be reported out at the next full Committee meeting.

Data Protection Standards – Task Group Report Out, David Langan

- The task group has provided preliminary recommendations (slides attached on ACCRES Minutes webpage).
- David requested additional volunteers for this task group as it currently includes only two people.
- Some of the issues discussed include computing requirements for the operator to utilize NIST provided encryption standards of AES 256 (versus AES 128), encrypting command uplinks; satellite maneuverability and the resulting probability of causing collisions; satellite operators using nonsecure amateur RF bands; and other forms of encryption protection.
- David stated that the most important of the preliminary recommendations for operators concerns implementation of encryption keys and key management. These features will have the greatest impact on cyber vulnerabilities.
- Tahara stated that new Data Protection Plan template has been rolled out to companies. CRSRA will categorize systems within three categories, based on their associated risk. Companies will have 90 days to implement protection requirements. It would be helpful as a regulator to know what to look for as new Data Protection Plans are implemented and from the perspective of the new proposed rule, where NOAA plans on looking at systems on a more case-by-case basis.
- ***Task Group Volunteers:*** John Bellardo, Todd Harrison, Brian Weeden, Adil Jafry, Michelle Kley and David Langan (lead) + Aerospace SME
- **ACTION:** Review current preliminary recommendations and develop a provisional set of data standard recommendations.

Euroconsult Earth Observation Report – Sima Fishman

- Sima presented he preliminary report results from the Euroconsult Earth Observation Report, which will be officially out in 2-3 weeks (slides attached on ACCRES Minutes webpage).
- Governments still dominate number of satellite launches.
- Asian and African markets are expected to grow; leading EO programs right now are U.S., China, Russia, India, and France.
- The majority of EO applications include business to business applications, location based services (smart cities, etc.), value added services, particularly focused on infrastructure.
- Data analytics services are increasing by companies operating constellations.
- There is significant uncertainty whether supply may outstrip demand unless new markets are opened.

Case Study: Dual Regulated Satellite Licensee – Rich Leshner, Planet

- Every operator is facing space regulations; however, challenges occur since regulations vary across jurisdictions. As a company it is hard to adhere to all those requirements especially when they may be in conflict with each other.
- Every country has a different set of requirements, and a different way of determining whether its regulatory jurisdiction applies to a specific commercial operator. As a result, companies need to make trade-offs among different markets, particularly when conflicting regulatory requirements may impose different legal liabilities.
- It would be helpful if ACCRES or another task group could develop a set of scenarios in situations where different regulations, e.g., when shutter control would become relevant. These use cases could help companies determine what their process of action should be in each of these scenarios where there are jurisdictional differences.

- Though dual regulation is only currently an issue for one NOAA licensee, there are prospects that it could become a larger issue in the future. Over time, ACCRES will review whether more attention should be placed on this issue.

EU Perspective: Copernicus Program – Jean-Luc Bald, Space Global Issues & Innovation Section Delegation of the European Union to the USA

- The 2014 Copernicus Program is run by the European Space Agency (ESA) and the European Commission, separately from the European Union's civil program. Copernicus is an earth observation program that applies to 28 member states.
- The program's goal is to build on national and European capacities and integrate ground-based data in order to more effectively respond to climate change, climate emergencies, and other changes in the environment.
- The principle behind the data is to keep it comprehensive, free and open. There are 176,000 data users with 96 petabytes of data that have already been downloaded. In the U.S. Government, data is used by multiple agencies, e.g., FEMA, NOAA, NASA, etc.
- The Copernicus Program plans to invest in a Cloud based platform to buy computing power that will allow data users to access only the data and analytics that they need.
- Because Copernicus took 14 years to coalesce, the industry has had time to prepare for its arrival. The Copernicus program is meant to compliment private industry, and helps stimulate the market where needed. For example, before Landsat data was offered to users at no cost, it had remained an untapped market.

German Industry Perspective on SatDSiG - Andreas Kern, Airbus Defense and Space/Intelligence

- Germany developed its regulations when TerraSAR X was launching. Germany's regulations are called SatDSiG, and focuses on data.
- There are thresholds to determine whether certain data is subject to SatDSiG regulations. Data managers are required to have low level security clearances, and companies are required to have a security concept (similar to NOAA's requirement for a data protection plan) and maintain positive control of their satellites. Government and government-public partnership satellite operators are also required to apply for a license. This includes DLR, the German Aerospace Center, which is also required to maintain a license.
- Once licensed, the satellite operator implements an algorithm that controls whether certain entities can purchase the satellite data (diagram in attached slides on ACCRES Minutes webpage). If the data is green, then the licensee can provide it to the customer, and if it is red then the request gets submitted for evaluation.
- Germany also has a map of concern, which can be found on their governmental website, which provides a blacklist of spots from where imagery cannot be purchased.
- If regulations or thresholds are changed, then the algorithms can be changed.
- Currently, Germany is helping the Spanish Government develop a regulatory apparatus to ensure that its SAR regulatory regime is consistent with Germany's, with the overall goal of a consistent global regulatory regime. It is important for regulatory regimes to maintain comparable levels thresholds for purposes of foreign competition and to ensure that companies across the globe can work together to integrate disparate data sets.
- Mr. Kern stated that commercial sales of 0.25-m imagery and phase history data do occur after review per the German regulatory process. The rejection rate for "sensitive products" is less than 10%.

The Canadian Perspective – Estelle Chou, Global Affairs Canada

- The Canadian regulatory scheme is laid out in the Remote Sensing Space Systems Act (RSSSA) and is comparable to the German and U.S. regulatory schemes. It regulates operations by any Canadian person globally and foreign operators in Canada.

- Remote sensing in Canada is defined similarly to the U.S. in that the focus is on capability to sense the Earth and includes satellite servicing missions.
- The law is flexible so as to evaluate new technologies on a case-by-case basis.
- In 2017, Canada conducted an evaluation of its existing law and regulation, and is now preparing to respond to the reviews received. The Canadian Government recognizes the need for adequate regulatory resources and the benefits for coordinated regulations across jurisdictions, analogous to Germany's WorldSAR initiative.
- The Canadian Government is working to reduce uncertainty and find balance between providing to industry a clear regulatory regime, while also recognizing the value of case-by-case evaluation.
 - Canada plans to participate in greater industry exchanges and discussions and hopes to establish a forum similar to ACCRES.
 - They are only in the preliminary stage of findings for regulatory reform and are looking to re-engage with international partners and look at other space laws before setting a firm timeline for regulatory reform.
- Canada has not seen a danger of businesses moving abroad, and does not see a strong pattern in companies choosing to do business in one country over another. There are many reasons that a company might choose to move geographical locations and regulatory concerns are only a small part of such considerations. Canada will work with companies as required to meet their business needs while meeting regulatory obligations.

Commercial Remote Sensing Regulatory Affairs (CRSRA) Update – Samira Patel, The Aerospace Corporation

- Complete current statistics can be found in slides attached on ACCRES Minutes webpage, including updated Memorandum of Understanding (MOU) Statistics
 - The MOU implemented last year among the Departments of Commerce, Defense, State, and Interior, and the Office of the Director of National Intelligence, has affected positively timelines for licensing and compliance actions.
 - In 2018, average review time for licenses has gone down to 57 days, with all 8 licenses that were started in this year completed on time.
 - The MOU applies all licensing applications and other regulatory actions. Overall, this year's licensing actions (including amendments, waivers, foreign agreements, license applications) have averaged number 62 days for processing this year.
 - In FY 2017, data protection plan review took an average of 232 days, and all reviews exceeded the 120 day limit. With the implementation of the MOU, CRSRA lowered the requirement to submit DPPs from 1 year to 120 days prior to launch. As a result, in FY 2018 data protection plan reviews have averaged 128 days, and eight reviews were completed within the 120 days limit. Nine reviews were not completed on time.
 - CRSRA is working on further improving these averages and have used the MOU to escalate 18 actions across all of CRSRA's activities that are reviewed by the interagency.
- Statement on Kyl-Bingaman Review and Determination
 - Last year, CRSRA received requests from NOAA licensees to re-evaluate the resolution limit for satellite imagery over Israel.
 - Under the current Kyl-Bingaman Amendment, the USG may issue a commercial license for the collection or dissemination of satellite imagery over Israel only if the resolution for such imagery is no better than satellite imagery of Israel that is available from other commercial sources, i.e., companies outside of the United States.
 - After conducting a yearlong study, CRSRA has completed its review of the availability of non-U.S. commercial satellite imagery over Israel NOAA determined that non-U.S. commercial satellite imagery is not readily and consistently available over Israel.

- CRSRA found that, although some non-U.S. commercial satellite imagery over Israel is available under 2 meters, it is only available under certain circumstances. Further, when entities were able to acquire imagery over Israel below 2 meters, they are not always allowed to distribute the imagery.
- CRSRA's study demonstrated that such imagery over Israel does not meet the standard of "readily and consistently available" as established by the Kyl-Bingaman Amendment.
- As a result of its review, NOAA will keep the resolution restriction over Israel and the current limit of 2 meters GSD.
- The Notice of Findings for this investigation was published in the Federal Register on October 15, 2018.
- CRSRA is required to conduct investigations on this issue frequently.
- NOAA is open and willing to revisit the findings of this most recent investigation. Any stakeholder with relevant information that would inform such an investigation is encouraged to send NOAA such information for analysis.
- Stakeholders with additional comments on this recent investigation or the Kyl-Bingaman Amendment can include such comments in the forthcoming Notice of Proposed Rulemaking.

Public Comments

Mimi Kirk - Sub-1m resolution imagery over Israel is now available from at least 4 non-US satellite companies: Airbus (French), Kompsat (South Korea), DMC3/TripleSat (Anglo-Chinese) and Deimos Imaging (Spanish operator with overall Canadian ownership). These details are recorded in a paper on the Kyl-Bingaman Amendment published online in the journal Space Policy in March 2018, with the paper including a figure (figure 2) showing the extensive archive coverage that the companies already have for their products covering Israel. The paper was passed on to Tahara Dawkins and she acknowledged receipt of the paper.

Tahara stated that CRSRA staff did try to buy imagery from those companies, but was unsuccessful, and therefore, the imagery is not readily and consistently available on the open market. CRSRA is open to companies and other entities providing a demonstration or the information needed to re-evaluate this determination.

Closing

- Gil and Herb thanked everyone who came and thanked NOAA for improving the timing for issuing licenses.
- Newly developed task groups will report out at the next ACCRES meeting with their recommendations. The meeting will likely be held March 5, 2018.
- In addition to the two current task groups evaluating the proposed regulations and data protection standards, NOAA and Gil would like to establish a task group dedicated to evaluating SAR in the U.S. and the regulatory apparatus for SAR. The task group lead for this is David Germroth.
- Committee members expressed their position on commercial remote sensing and ACCRES.
- Gil looks forward to continue working with the Committee to meet NOAA's needs and address the biggest commercial remote sensing challenges facing the U.S. today and adjourns the meeting.