

	<p><b>Advisory Committee on Commercial Remote Sensing (ACCRES)</b>          Wednesday, November 3 Thursday, November 4, 2021, 11:00 AM – 3:00 PM</p>
	<p><b>Meeting Attendees</b></p> <p><b>Committee</b></p> <ul style="list-style-type: none"> <li>● <b>Mr. Gil Klinger</b> (Committee Chair), President, Gil Klinger Consulting LLC</li> <li>● <b>Ms. Krystal Azelton</b>, Secure World Foundation</li> <li>● <b>Dr. Asha Balakrishnan</b>, Science &amp; Technology Policy Institute (STPI)</li> <li>● <b>Mr. Payam Banazadeh</b>, Capella Space</li> <li>● <b>Mr. Gregory Black</b>, President, Gregory E Black LLC</li> <li>● <b>Mr. Tony Frazier</b>, Maxar Technologies</li> <li>● <b>Mr. David Germroth</b>, Airbus U.S. Space and Defense</li> <li>● <b>Dr. Henry Hertzfeld</b>, Space Policy Institute</li> <li>● <b>Mr. Prasad Komma</b>, Microsoft Azure</li> <li>● <b>Mr. Tony Lin</b>, DLA Piper</li> <li>● <b>Ms. Pamela Meredith</b>, KMA Zuckert LLC</li> <li>● <b>Mr. Kevin D. Pomfret</b>, Centre for Spatial Law and Policy</li> <li>● <b>Mr. Tommy Sanford</b>, Commercial Spaceflight Federation</li> <li>● <b>Mr. Robert H. Schingler Jr.</b>, Planet Labs</li> </ul> <p><b>Special Guests</b></p> <ul style="list-style-type: none"> <li>● <b>Mr. Chirag Parikh</b>, Executive Secretary, National Space Council</li> <li>● <b>Mr. Adam Keith</b> (<i>online</i>), Principal Advisor, Euroconsult</li> <li>● <b>Ms. Susan Irwin</b>, Managing Director, Euroconsult</li> <li>● <b>Dr. Wolfgang Schneider</b>, Department Head, Civil Security, and Regulatory Affairs, German Space Agency at DLR</li> <li>● <b>Mr. Johannes Stahl</b>, German Space Agency at DLR</li> </ul> <p><b>Department of Commerce/National Oceanic and Atmospheric Administration</b></p> <ul style="list-style-type: none"> <li>● <b>Mr. Don Graves</b>, Deputy Secretary, U.S. Department of Commerce</li> <li>● <b>Ms. Olivia Volkoff</b>, Policy Advisor, Office of the Secretary, Office of Policy and Strategic Planning, U.S. Department of Commerce</li> <li>● <b>Mr. Mark Paese</b>, Deputy Assistant Administrator for Satellite and Information Services, NOAA</li> <li>● <b>Ms. Perry Brody</b>, Senior Advisor, Office of the Under Secretary for Oceans &amp; Atmosphere/NOAA/Department of Commerce</li> <li>● <b>Ms. Tahara Dawkins</b>, Director, Commercial Remote Sensing Regulatory Affairs and Committee Designated Federal Official (DFO), NOAA</li> <li>● <b>Mr. Glenn Tallia</b>, Chief, Weather, Satellite and Research Section, NOAA General Counsel</li> </ul>
<b>Meeting Minutes</b>	
<b>Day 1</b>	
<b>11:00 EDT, Wednesday, 3 November, 2021</b>	
<b><u>ACCRES Welcome</u></b>	<b><u>Tahara Dawkins</u></b>
Ms. Dawkins welcomed all the guests and went over the meeting and building logistics	
<b><u>Opening Remarks &amp; Introduction of Committee Mr. Gil Klinger</u></b>	
After Committee introductions, Mr. Klinger led the following discussions:	

Discussion: A lot has changed with remote sensing since ACCRES last met. We will discuss this in detail during the sub-group sessions tomorrow. We understand it is a challenge in COVID operations to get together; we are striving to push the ACCRES agenda forward. He asked each of the members to be clear on the level of effort they can provide to the groups. The groups have value in moving our initiatives forward, so we need to be able to assess the level of what a group can accomplish given everyone's business requirements. NSPD 27 (National Security Presidential Directive 27) is now old enough to vote, it needs to be rethought given the exponential rate of change in the industry

- We need to provide the voice of the industry to enable NOAA to carry out its mission

Mr. Klinger welcomed the German speakers for the next section

### **Remote Sensing Regulation in Germany**

**Wolfgang Schneider**

*Dr. Wolfgang Schneider with Mr. Johannes Stahl of the German Aerospace Center (DLR) provided an informative briefing on the German Satellite Data Security law and regulations used by the German commercial remote sensing community. Dr. Schneider discussed the development of the satellite data security regulations and law in Germany which became active in December 2007, two major purposes of the German data security policy are fostering the use of commercialization of remote sensing data and safeguarding the security and foreign policy interests of Germany, the EU, NATO, friendly nations, and allies.*

*Please see the attached PowerPoint presentation.*

The National Data Security Policy for Space-Based Remote Sensing Systems is implemented via the German SatDSiG, Satellite Data Security Law, in combination with SatDSiV, Satellite Data Security Ordinance.

In the early 2000's significant advances in satellites and sensor technologies occurred. High information content in data and high-resolution capabilities became a concern.

- Germany launched TerraSAR-X in 2007
- RapidEye constellation was launched in 2008
- Germany saw the need for implementation of the Satellite Data Security Policy.
- It was needed to foster the use of commercial remote sensing data
- There was also a need to safeguard the security and foreign policy interests of Germany, the EU, NATO, and other allies.
- The law (SatDSiG) went into force in December 2007.
- The ordinance went into effect in 2008.

#### **The SatDSiG Law applies to:**

- Non-military / non-intelligence satellites
- High-grade Earth remote sensing system.
- First-time dissemination of data from high-grade systems.

- Requirements are clearly defined and the procedure is transparent for data dissemination.
- Licensing applies to operators of high-grade systems and data providers.

**There is a two-step approach for data dissemination:**

- A sensitivity check is performed for all transactions of high-grade data
- The check is the responsibility of the data provider
- The check is an algorithm with thresholds and can use metadata and can be automated
- The check is fast and efficient
- Check and transactions are documented and open for on-site inspection
- If a transaction is not sensitive, a provider may deliver the data
- If a transaction is sensitive, an approval by the German Government is required

**Question:** Does the German government do an image-by-image review?

**Answer:** We do have an image checking process. We have a two-layered approach, the first is a sensitivity check which is conducted by the license holder. The sensitivity check has two outcomes whether it's sensitive or not sensitive. If it is not sensitive then they can go ahead and it's fine.

**Question:** How do 3<sup>rd</sup> party ground stations handle the check requirements?

**Answer:** That is just an alternative way of data delivery. The data sensitivity check is already done if required. There is no licensing obligation for that ground station. If that ground station belongs to an [system] operator of a data distributor it would be part of a license.

**Question:** How flexible is the algorithm?

**Answer:** We put those details for the algorithm into the bylaw to allow for some flexibility.

**Question:** Would it be difficult to change the algorithm?

**Answer:** So far, we have not needed to change the algorithm but it could be possible.

The whole idea of the law is to give a general structure and the bylaw is more specific on how the sensitivity algorithm is used.

Data distributors do a sensitivity check if it's not sensitive, go ahead and distribute if it's sensitive then you need to go to the government for an evaluation to do this. You need to send out an electronic form and you get a permit for distribution.

**Question:** Are these different algorithm thresholds for the different sensors?

**Answer:** The current algorithm makes a differentiation between radar and optical sensors.

The law and the bylaw allow us to have 100% oversight of all transactions and the sensitivity check can be done by each distributor.

This mechanism proves to be efficient because it can be done automatically depending on the customer base. Only a small fraction of transactions need to be reviewed [by the government].

The mechanism has proved to be efficient since the sensitivity check is typically implemented as an automated procedure depending on the customer base. Only a small fraction of transactions need to be reviewed [by the government].

The regulatory mechanism also considers current developments in new circumstances and external effects like international availability.

**Question:** Is there a shutter control mechanism in this process?

**Answer:** There's an equivalent mechanism to shuttle control. If we don't have any situation where you're not allowed to acquire an image, then we can tailor the threshold and update it dynamically.

Three different German government agencies are concerned with these kinds of data security matters.

**Question:** Is the algorithm publicly available?

**Answer:** Yes, but only in German.

**Euroconsult Briefing**

**Adam Keith**

***Mr. Adam Keith is a Principal Advisor for Euroconsult. He provided a global look at the state of the Remotes Sensing Industry naming Canada as the new leader for government funding of industry systems, and the US as the leader in support to customer data services.***

*Please see the attached PowerPoint presentation.*

Mr. Adam Keith from Euroconsult started the presentation with an introduction of Euroconsult as a strategic consulting firm that develops comprehensive market intelligence products, organizes executive-level annual summits, and training programs for the satellite industry. Mr. Keith then explained the Earth Observation (EO) market and how the market has grown since 2020 and is expected to grow even further to 2030.

EO data and value-added services (VAS) combine for a total of \$3.1 billion in 2020. The \$1.6 billion commercial data market remains driven by defense users. The \$2.5 billion VAS market is becoming more diverse in vertical demand, and lower cost /free data can be leveraged to build greater value services. There is expected to be a growing emphasis on information delivery.

Mr. Keith summarized the commercial data market by explaining sales to non-U.S defense reached \$650 million in 2020. With limited government systems to support defense, the importance of commercial data will remain.

The highest resolution, highest accuracy data is priced higher and generates the most revenue. This data will always command the highest price with no evidence this is coming down. The arrival of constellations with 1-meter data will decrease the price point with a focus on leveraging the data for VAS. The result will be a gradual slowdown of the 1m ground resolution market despite increased usage. Two companies still account for 50% of the data market in 2020. However, supply is starting to increase significantly.

Mr. Keith went on to explain how the U.S. remains the primary source for NewSpace activities, >30% of all companies. Companies are characterized by fast-paced timelines, which do not typically match the long-term timelines of government programs. To remain competitive companies must be able to navigate government licensing, grants processes, and funding mechanisms quickly. Countries adopt a degree of data commercialization

oversight – more viewed as policy guidelines than strict regulation. Most policy/regulation concerns <1-meter Ground Sample Distance (GSD) data. Above this, there are a few limitations.

The NOAA CRSRA office engaged with Euroconsult to provide a global understanding of Earth observation technologies. As a result, Euroconsult constructed the Global Earth Market & Technology Study to show where technology leadership is in the commercial context and how it may shift. This study assesses the value proposition of different projects, provides technical comparisons and the markets to be addressed and the likelihood of projects coming to fruition based on the funding levels and tech. readiness. It also demonstrates where the “cutting edge” is today, and is expected to be in the future. Euroconsult considered two metrics in the study: ground resolution, and persistence. Other factors e.g. geolocation accuracy was not measured.

Different sensors perform different functions and are subject to different standards. For example, while panchromatic (PAN) data can be collected at 30 centimeters (cm) from WorldView-3, the shortwave infrared (SWIR) data at 3.7 meters is also considered “cutting edge”. In longer wavelengths, ground resolution and revisit are still key. Being able to monitor at a localized level (e.g. buildings), brings the most commercial potential: thus the target of companies developing thermal imaging solutions.

**Question:** Who might be #1 in government funding for remote sensing?

**Answer:** Probably Canada, then UK and Germany.

**Question:** Where would the USA be on the list?

**Answer:** The US is a big customer for data and services. Some in Germany may be envious of the US in this regard but in Germany, they have the benefit of Public-Private-Partnership programs (PPP) and direct government funding.

Some things have shifted in the past 5 years and governments are reacting now to competitive pressures.

- There is a common thread. Governments need to reduce red tape and that is the #1 ask from industry in the world.

**Question:** You pointed out \$7.5 billion worth in 2030; Did you include the value of PPPs and government support for the industry?

**Answer:** The \$7.5 billion is about revenue (not government investment).

### **Aerospace SAR Study Report Out**

**Brooks Cressman**

*Mr. Brooks Cressman Aerospace (FFRDC) support to CRSRA, provided a presentation on Synthetic Aperture Radar (SAR) Benchmarking at CRSRA. The presentation included background on SAR technology, a review of performance metrics, and the reason for updating the Benchmark to the new Radar General Image Quality Equation (RGIQE) metric including values for selected foreign systems. He also noted the issues with using RGIQE that remain to be resolved.*

*Please see the attached PowerPoint presentation.*

- **Different SAR implementations** - SAR’s come in Electronically Steered Array (ESA) and conventional dish antenna formats. NewSpace SAR operators such as ICEYE, Capella and Umbra have revolutionized the field with satellites that are 10x smaller/lighter and 20x cheaper. .
- What defines SAR performance?

- **Spatial resolution**
- **Signal-to-Noise Ratio**
- **Collection capacity/revisit rate** - single sat vs constellation
- **Processing/calibration.**
- **Benchmarking Problem Background** - Current metric (GRD) is easily understood but not effective.
- **New benchmark metric** - Need one that bridges instrument capability and image quality, captures multiple SAR performance attributes, considers both range and azimuth resolution
- **Benchmarking Approach** - asked (Industry and USG) experts how best to compare SAR systems
- **Selected Benchmark metric**
  - RGIQE or Radar General Image Quality Equation
  - RGIQE builds on the EO imagery equation concept
  - Current Status - RGIQE implemented
- **Problems with RGIQE** - The foreign metric is based on what is advertised commercially, not necessarily their best capability. Many times, foreign competitors are unwilling to tell us their full capability. Would be very helpful if the industry were able to obtain these. Benchmarking updated immediately once a foreign competitor is confirmed to be doing better than listed in our benchmark

US best azimuth is compared with available imagery azimuth resolution from foreign sources, which is always less. This puts US systems at a disadvantage. The way to fix this is with an update to CFR 960.

- **Persistence and Tiering:**
- Persistence is defined as revisit timing (global). It is the temporal dimension of data availability, and is also used for Tiering. For each phenomenology there is a resolution threshold below which persistence is not tracked.
- **SAR Spectrum:** The ITU spectrum allocation for space-borne SAR is 1200 MHz and this is not likely to ever increase. In the US, only 600 MHz is allocated. Realistically the best ground range resolution you can achieve with 1200 MHz is 0.22 m.

### Questions and Answers

**Question:** Dr. Schneider was asked how the US and German approach to determining SAR system sensitivity compares.

**Answer:** Germany applies conditions on a case-by-case (each imaging request) basis while we apply conditions to the whole system. New regulations require us to compare ourselves to foreign competition.

**Question:** (ACCRES DFO to Dr. Schneider): How many SAR companies are you regulating?

**Answer:** Just one: Airbus.

**CRSRA Update**

**Nathan Boll**

***Mr. Nathan Boll, Aerospace Support for CRSRA, provided a CRSRA Update Briefing for the ACCRES Committee.***

*Please see the attached PowerPoint presentation.*

Mr. Boll provided the ACCRES committee with an overview of CRSRA activities to include licensing updates from the fiscal year 2021 with a discussion of the expiration of temporary conditions as well as an update on the new coming license format. Mr. Boll also provided an update on compliance activities at CRSRA to include the fiscal year 2022 annual compliance certification metrics as well as enforcement action metrics for the past calendar year and also a brief discussion of the recent ground station inspections.

Mr. Boll also provided some information on CRSRA's new initiatives to include process improvements, some discussion of ongoing activities concerning the Kyl-Bingaman amendment and the borders of Israel. A space cybersecurity symposium was recently held in collaboration with the Department of Homeland Security and the Department of Commerce in October.

The CRSRA licensing activity has seen tremendous growth in its activities with new licensees as well as newly licensed satellites that have been launched into orbit. During the decade of 2011 to 2021, there has been a significant increase in total licenses. In 2011 there were 12 licensees and in 2021 there are 67 total licensees. In 2011 there were a total of 26 licenses; in 2021 now, a total of 91 licenses. As far as licensed satellites on orbit in 2011 there were 5, in 2021 there are now 392

CRSRA has issued 60 tier-1 licenses, 9 tier-2 licenses, and 22 tier-3 licenses, for a total of 91 licenses and 1182 total licensed satellites. CRSRA licensing has conducted numerous license modifications. In the fiscal year 2021, they received 52 requests for license modification, 28 new license applications were received, and 24 new licenses were issued starting July 20, 2022. CRSRA has issued 35 new licenses under the new regulations.

CRSRA compliance has been busy conducting the fiscal year 2022 annual compliance certification (ACC). There were 92 open licenses that required certification by October 15, 2021, to date 82 have been submitted, two licenses were closed, and eight licensees have still not responded. Since the ACC, one new license was opened.

Enforcement metrics in fiscal year 2021: 18 investigations were initiated. In the fiscal year 2022, to date 7 investigations have been opened and there will be more investigations as a result of the annual certification that was recently conducted.

CRSRA's Compliance Section has conducted 22 ground station inspections in the fiscal year 2021. Ground station inspections were paused due to the pandemic in March 2020 with approximately 300+ sites requiring inspection. Inspections resumed on July 20, 2021. The inspections happened at 12 Mission Control Centers and 10 ground stations, resulting in 7 investigations. In the fiscal year 2022, there will be more ground station inspections occurring, both domestic and overseas.

CRSRA intends to make certain process improvements in the coming year. There will be improvements on the online fillable forms for licensees. CRSRA intends to hold a licensing workshop sometime in the coming year as well as improve guidance to licensees with the upcoming "CRSRA Guide to the Galaxy".

CRSRA has collaborated with inter-agency partners, specifically within the Department of Commerce and with the Department of Homeland Security to hold 2 Space Cyber Security Symposiums, the first being in May 2021 with a

focus on Access for Startups, and the second symposium was held on October 13, 2021, with the focus being Applied Security for Cyber Security for Space.

CRSRA has experienced some growing pains and is working hard to implement the new regulations that were issued in July 2020. CRSRA has a goal of facilitating compliance with all licenses and looks to establish a strong forward-looking strategy for the regulation of the commercial remote-sensing industry.

**Question:** What percentage of the temporary conditions were extended by request?

**Answer:** 100%. Temporary conditions can be extended up to three years. Under the regulations, there needs to be an extension justification to extend a temporary condition. it's not a rubber stamp approval by any means.

**Question:** If you have approved 100% of the extensions for temporary conditions that would appear to be a rubber stamp, no?

**Answer:** We did extend 100% of them but there was streamlining in the process. That process can take some months to accomplish, to streamline those conditions it wasn't a rubber stamp.

**Question:** I would like to see how that number changes over time to underline what kind of progress is being made?

**Answer:** The old conditions continued on for years but now we have put limits on these types of conditions. We are working on providing guidance and improving our processes.

**Question:** Is it possible to get stats for how many challenges have been made to the conditions?

**Answer:** We can say there have been challenges and any company has the right to appeal.

**Question:** When seeking a one-year extension to a condition is that done in collaboration with the licensees?

**Answer:** Yes, correct. We do not ask the licensee's permission to extend a temporary condition although we talk with them to see what kind of mitigation is possible instead of a condition and we have done this and it was accepted and no condition was placed on the licensee.

**Question:** Could the government come back for a condition extension and place additional conditions on a license?

**Answer:** No, retroactive conditions are not allowed as long as it's the same system with the same capabilities.

**Question:** About updating the license format, who in the industry did you talk to about this?

**Answer:** We discussed license format with our licensees directly.

**Question:** Will there be an explanation of the new license format?

**Answer:** Yes, actually this is the public meeting for that purpose and we will also hold future seminars concerning the new license format. This new license format change is meant to make licenses more clear and easier to understand. It is a format change not a content change.

**Question:** What will change in the new license format?



<p><b>Answer:</b> The change will be how the form information is presented. It will be easier to read and understand we are not adding anything new.</p> <p><b>Question:</b> Can you parse the license violations by procedural violation or substantive violation?</p> <p><b>Answer:</b> The violations varied, some because they didn't update their license and some because they were in orbit without a license. There were different reasons.</p> <p><b>Question:</b> Are investigations done only by your office?</p> <p><b>Answer:</b> We have two compliance officers and we work with the NOAA General Counsel (NOAA GC) to do investigations now. We have seen a large increase in 2021 in compliance actions. Previously we had a very small compliance effort and now we have a complete team that scrutinizes data more closely.</p> <p><b>Question:</b> Is there general data available about the fines placed on violations?</p> <p><b>Answer:</b> We can say that we use a penalty matrix to determine what action should be taken. We can also go to a magistrate should there be a need to have a license removed too.</p> <p><b>Question:</b> Is it possible to get an idea of the types of fines or any information on fines?</p> <p><b>Answer:</b> A lot of these are ongoing investigations and we're still working on them so we cannot provide a lot of information on this.</p> <p><b>Comment:</b> Tracking this kind of data year after year might be very helpful to see trends.</p> <p><b>Question:</b> Inspections of ground stations under the new regulations should be less frequent. What makes you go out to do an inspection?</p> <p><b>Answer:</b> We work with our inter-agency partners to work on priorities for inspections. We consider inspecting mission control centers that have never been inspected before. That is a high priority. Recently we inspected many locations in Northern California and it was a very intense effort. Additionally, new stations overseas are of great interest, especially where we haven't been before.</p>
<p><b><u>Remarks and Committee Questions</u></b></p> <p><b>Question:</b> How many violations have been captured this year alone during inspections?</p> <p><b>Question:</b> How many investigations are currently active? Can you break this information down by Tier?</p> <p><b>Question:</b> How are companies selected to be inspected?</p> <p><b>Question:</b> What action is taken when you notice companies are out of compliance?</p> <p><b>Question:</b> Can you take a company's license?</p> <p>NOAA GC and Ms. Dawkins, CRSRA Director, agreed to look into how best to answer these questions without implicating any particular licensee or divulging any proprietary information</p>
<p><b><u>Public Comments</u></b></p>

<p><b>Question:</b> Does NOAA legal counsel, or anyone else, have an opinion on the absence of regulation of commercial Radio Frequency (RF) (operators like Hawkeye 360) in comparison to commercial remote sensing, and whether this comparative regulatory gap satisfies our international legal obligations under Article VI of the Outer Space Treaty?</p> <p><b>Answer:</b> NOAA GC - not in a position to provide an answer.</p> <p><b>Question:</b> Is the German “sensitivity check algorithm” publicly available? Do you know if the specifics of that algorithm are something we can review?</p> <p><b>Answer:</b> Mr. Schneider - Yes, it is on our website, but it's in German.</p> <p><b>Question:</b> How does CRSRA create benchmarks around persistent/rapid revisit with potentially infinite combinations of spatial resolution and revisit rate? For example, how do you compare a 1.0m Ground Sample Distance (GSD) system with 3 hours revisit versus a 0.8m GSD system with a 4-hour revisit (i.e. if a system has better resolution but worse revisit, or vice versa, which system is more "capable"?)</p> <p><b>Answer:</b> Nathan - statistics are handled separately. Much more complicated than explained.</p> <p><b>Question:</b> Can you make the ACC available more than 2 weeks prior to being due?</p> <p><b>Answer:</b> Yes</p> <p><b>Closing Remarks</b> <span style="float: right;"><b><u>Gil Klinger</u></b></span></p>	
<p>Mr. Klinger Closed the meeting by thanking all committee members and attendees for joining the 1st day of the session.</p> <p><b>Meeting Adjourned, 3:00 pm EDT</b> <span style="float: right;"><b>Tahara Dawkins (DFO)</b></span></p>	
<p><b>Day 2</b> <b>11:00 am EDT, Thursday, November 4, 2021</b></p>	
<p><b>Introduction of the Deputy Secretary</b> <span style="float: right;"><b>Mark Paese</b></span></p>	
<p><b><u>Remarks from DOC Deputy Secretary</u></b> <span style="float: right;"><b><u>Deputy Secretary Graves</u></b></span></p>	
<ul style="list-style-type: none"> <li>● The Biden administration is committed to ensuring U.S. leadership in space</li> <li>● The Department of Commerce shares that commitment and is involved in satellite operations, collecting climate and weather data, Space Situational Awareness (SSA)/Space Traffic Management (STM), spectrum management, cybersecurity, and export control. <ul style="list-style-type: none"> <li>○ Office of Space Commerce setting up SSA/STM</li> <li>○ NOAA understanding weather and climate, investing in satellite technologies</li> <li>○ CRSRA groundbreaking regulatory reform <ul style="list-style-type: none"> <li>■ Won Bronze Medal</li> </ul> </li> </ul> </li> </ul>	

■ Seeing extraordinary growth in the industry

- ACCRES can provide input in three areas
  - Policy & Law
  - Global Competitiveness
  - Future of the Industry

**Committee Questions to the Deputy Secretary**

**Question:** How interested is the current Secretary of Commerce?

**Answer:** She is very interested. I meet with her about space weekly and with Mr. Parikh every other week.

**Question:** What are OSC's priorities and what is the status of the Orbital Debris Assessment Report (OADR)?

**Answer:** We are seeking an increased budget and additional staffing. The OADR pilot just launched for federal partners and we expect to begin giving demos to stakeholders and collecting their feedback in 2022.

**Question:** How do you balance various government roles as a regulator, customer, and promoter of space commerce?

**Answer:** There are firewalls between these various aspects and we welcome recommendations from the committee.

**Question:** We are moving too slowly and losing ground to global competition.

**Answer:** The committee is right to be concerned with global competition, but I have direct access to the President and orders from him to push through innovative change, so let's get to work deciding what we want to do.

**Comment:** The Working Group on Global Competition will be very important to look at what others are doing.

**Response:** Agreed.

**Question:** What boundaries are there in terms of what the working groups can look at?

**Answer:** There are no boundaries - yes, we want to hear about remote sensing, specifically, but also anything else related.

**Question:** Government procurement shapes industry practice and needs to be reformed; Government needs to engage with the remote sensing industry to address the climate crisis.

**Answer:** Agreed. The National Space Council also understands the value of commercial remote sensing and will be addressing procurement reform. DOC/NOAA is looking to partner with industry on Earth observation.

**National Space Council Update**

**Chirag Parikh**

- The National Space Council is not about any specific sector, but being able to integrate across different entities. (Civil, government, intel, agriculture, etc..)

- Competitiveness, Futures, Policy and Legal framework. Important to understand that the environment has changed. Remote Sensing from space is a commodity. ACCRES can help review existing policy and regulatory environments from the industry perspective. This can help shape the future of this industry. How are existing policies being implemented? How do they need to change? recommends a Working Group to focus exclusively on that. Companies take data and turn it into defensible solutions. What are other countries doing to promote the industry? (that the US is not doing) Tech trends and the emergence of disruptive technologies. What policies and frameworks do we need to enable changes?

**Question** from Committee Member Mr. Sanford: Do you plan on keeping a close eye on T3 and how it's implemented?

**Answer:** Yes, we will try in all departments and agencies.

### **Committee Discussion**

**Gil Klinger**

Mr. Klinger read an email from April 2003. He then stated that nothing has improved since then, except the streamlining of licenses.

- Mr. Klinger - "Have seen committees make a difference in the past. Would like to come out with a draft consensus of a description for a mandate of each of the 3 working groups. Identify a chair and co-chair by the end of the day. Remit single points of failure." Co-chair for the ACCRES committee as well. Competitiveness, Futures, Regulatory/Policy working groups. "ACCRES helped finalize the current regulations." GC - "we are reconsidering the regulations, we are reconsidering everything."
- **In-room Conversations:** Mr. Paese - We know we are advancing technology, competitiveness.

**Mr. Lin:** No one is marketing or selling NEI. It is a by-product of another mission. NOAA focuses on it as if it is a product, regulating it as if it is the product. Problem is the word capable in the definition.

**ACCRES DFO:** We know what the problems are, what are the solutions? Only regulating your capability to image the earth.

ACCRES is going to decide the boundaries and what NOAA looks at? (All subject to interpretation)

- **What's going to be the scope in the area of exploration for each WG?** The first assignment for all Working Group

**Question:** Who would you like to have as the liaison member to agencies and departments?

**Mr. Sanford:** People will ignore policies they don't like and pay attention to the parts that they do. Advance US leadership, innovation and competitiveness should be the primary scope.

**ACCRES Chair:** Timeframe for Policy and Law group NLT March 2024.

**CRSRA GC:** DOD and DOS have statutory responsibilities here as well.

### **Recap**

One way to become more competitive is to change the law, and change the policy

Competitiveness focuses on industrial policy, hardware, manufacturing, etc..

<p><b><u>Roll out of new working groups</u></b></p> <p>Two Working groups were formed:</p> <ul style="list-style-type: none"><li>• The Law/Policy/Regulatory (LPR) Group was formed to evaluate the impact on US Commercial Remote Sensing Industry of existing policies, statutes and regulatory framework in light of the existing National Security Presidential Directive 27 (NSPD-27) goals and objectives. This group includes ACCRES Committee members: Co-Chairs Tommy Sanford, and Dr. Henry Hertzfeld, Tony Lin, Krystal Azelton, Kevin Pomfret and Gregg Black.</li><li>• The Global Competitiveness/Futures Group was formed to review and evaluate the impact of evolving trends in technology, policy, foreign competition and regulation on potential future regulatory framework. This group includes ACCRES Committee members: Co-Chairs Tony Frazier and Dr. Asha Balakrishnan, Pam Meredith, Robbie Schingler, Payam Banazadeh, Tony Lin and Tommy Sanford.</li></ul>	<p><b><u>Gil Klinger</u></b></p>
<p><b><u>Committee Discussion</u></b></p> <p><b>Gil Klinger:</b> We will get an email out to group members about what they are assigned to do. We want to be sure that we will make good use of our time. We can do a halfway checking with the groups. The group's deliverable should be a 2-3-page paper that gets reviewed along the way.</p> <p><b>Tahara Dawkins:</b> We will send out an email with the names of the co-chairs of the groups and members with some time frames for work. Meetings must have a Designated Federal Office present as with any ACCRES meeting. You can pass emails and copy Ms. Dawkins but no meetings without a DFO. The ACCRES committee must present the findings to NOAA not directly from the working groups. We will designate NOAA personnel as DFOs for working group meetings. We will lay all of that out for you with a timeline too.</p> <p><b>Glenn Tallia:</b> This needs to be out in the open and in the public eye. The law requires it.</p> <p><b>Ms. Dawkins provides metrics from Day 1 Committee Questions:</b> I have some metrics information from yesterday's conversations to share with you. We give a CRSRA update as at every ACCRES meeting. But the metrics change daily.</p> <p>Compliance Investigative Stats:</p> <ul style="list-style-type: none"><li>• 18 investigations in FY 21</li><li>• 7 investigations in FY 22</li><li>• This is a total of 25 investigations</li><li>• Tier 1 - 12 (4 not administrative in nature)</li><li>• Tier 2 - 2 (1 not administrative in nature)</li><li>• Tier 3 - 8 (7 not administrative in nature)</li><li>• Not licensed - 3 (All being administrative, requesting to fill out an ICF)</li><li>• Three investigations were for companies we don't yet license.</li></ul> <p><b>Question:</b> Were the not yet licensed satellites launched by a US company?</p>	<p><b><u>Gil Klinger</u></b></p>

**Answer:** They were not launched yet. But some don't launch from the USA; some launches are from India. *(Ms. Dawkins)*

**Question:** What do you consider as administrative?

**Answer:** Changes to Part C of the license, failure to report launch, or requesting to submit ICF. *(Ms. Dawkins)*

**Question:** What do you mean by investigation?

**Answer:** Any violation may be investigated. CRSRA investigates with an initial inquiry to find out what exactly is going on. *(Ms. Dawkins)*

**Answer:** We have broad authority to investigate and look for any violation. *(Glenn Tallia)*

**Committee Comment:** The Office of Space Commerce (OSC) should participate in the Global Competitiveness working group.

**Tahara Dawkins:** There are several reasons we do not consider virtual constellations. Right now, you have one license for a constellation of identical satellites.

**Question:** What if a company with 5 tier one licenses puts them together that may be a Tier 3 license then?

**Answer:** There is more than one concern. Benchmarking is not based on national security, it is based on what is available. If what a licensee is providing is available globally then we don't restrict it. The test is to prove to me what is available. We look at what the foreign competition can actually do and what is available to me. *(Ms. Dawkins)*

**Comment:** I don't think you can look at data availability without considering cost.

**Glenn Tallia:** If you can buy it at any cost, it's available. We look at whether the data is commercially attainable.

**Tahara Dawkins:** We ask if you have made the data available.

**Question:** If no one is asking for NEI then how is availability considered?

**Answer:** It gets treated as a tier 3 if the government has identified it as a risk. *(Ms. Dawkins)*

**Glenn Tallia:** The decisions were made at high levels to put temporary conditions on things.

**Glenn Tallia:** We want to make sure we were looking at apples to apples so it's unenhanced data to unenhanced data so we are consistent.

**Glenn Tallia:** Mr. Lin, you asked yesterday about appeals, we have one active appeal, can't say more than that.

**Question:** Are you looking at what the capabilities are, or what is commercially available?

**Answer:** For tiering we're looking at unenhanced data vs unenhanced data. But for benchmarking we use other measures. *(Ms. Dawkins)*

**Committee Comment:** Thank you everyone for these past days. I am encouraged and we have done some important work and we have some work ahead.

<b>Gil Klinger:</b> Thank you everyone. Thank you, Dr. Schneider, and Mr. Stahl for coming across the Atlantic to be with us. Ms. Pierre, Ms. Dunn, and Ms. Hall, thanks for all your support!	
<b>Public Comments</b>	<b>Tahara Dawkins-ACCRES DFO</b>
<b>Question:</b> Is the German regulation algorithm available to the public?	
<b>Answer:</b> Yes, but it is only in the German language.	
<b>Tahara Dawkins:</b> We have some numbers concerning licenses: For tier 1 we have 815 licenses with 372 on orbit; tier 2 licenses we have 24 licenses with six of those on orbit; and for tier 3 we have 343 licensed with 14 on orbit at this time.	
<b>Closing Remark</b>	<b>Gil Klinger</b>
ACCRES Chair, Mr. Klinger thanked the attendees, the presenters, and the CRSRA staff who supported the meeting and closed the session.	
<b><u>Meeting Adjourned 3:00 pm EDT</u></b>	