NOAA ADVISORY COMMITTEE FOR COMMERCIAL REMOTE SENSING (ACCRES)
MEETING SUMMARY (2nd Meeting)

CLOSED SESSION

The NOAA Advisory Committee for Commercial Remote Sensing (ACCRES) convened its second meeting in a closed session at 8:30 A.M. on January 14, 2003, at the RAND Washington Office in Arlington, Virginia. The session was closed to the public pursuant to Section 10(d) of the Federal Advisory Committee Act, 5 U.S.C. App. 2, as amended by Section 5(c) of the Government in Sunshine Act, P.L. 94-409 and in accordance with Section 552b(c)(1) of Title 5, United States Code. The closed session addressed classified issues and related national security and foreign policy considerations for NOAA's licensing program.

Committee members present:

Dr. Wanda Austin, Aerospace Corporation
Mr. Richard Cooke, Research Systems, Incorporated
Mr. John Copple, Space Imaging, LLC
Mr. Martin Faga, MITRE
Dr. Joanne Gabrynowicz, University of Mississippi
Dr. Charles Groat, U.S. Geological Survey
Mr. Joe Heaps, on behalf of Mr. Michael Hewins, AstroVision International, Inc.
Dr. Terrence Keating, American Society for Photogrammetry and Remote Sensing
Ms. Roberta (Bobbi) Lenczowski, on behalf of Lt. General James Clapper, National Imagery and Mapping Agency
Mr. Victor Leonard, Resource 21, LLC
Mr. Kevin O'Connell, RAND (Committee Vice Chair)
Mr. Robert Winokur, Earth Satellite Corporation (Committee Chair)

Presiding Staff of the National Oceanic and Atmospheric Administration (NOAA):

Ms. Karen Dacres, Satellite Programs Counsel
Mr. Timothy Stryker, Remote Sensing Licensing Coordinator and ACCRES Designated Federal Officer
Mr. Gregory Withee, Assistant Administrator for Satellite and Information Services

Mr. Winokur opened the meeting and discussed the desire for the committee to use today to develop a work agenda. Mr. Withee then addressed the committee thanking them for their time and stating that NOAA wants the best information possible to do its job. He noted NOAA's role as a regulator but also, as part of the Department of Commerce, as an advocate for the commercial sector.

National Security Presidential Directive-15: Commercial Remote Sensing Space Policy

Gil Klinger, Director for Space Policy at the National Security Council, discussed the upcoming Commercial Remote Sensing (CRS) Policy as part of National Security Presidential Directive-15. The committee discussed areas that need to be addressed in the new policy including: revised policy guidance for government-US CRS industry relations, guidance on exports and the foreign CRS industry, and protection of national security. The committee discussion focused on the need to make industry the choice of government when it needs data, emphasizing that U.S. national security will be enhanced by a

robust U.S. industry. The committee agreed on the need to review NOAA's implementation of the policy and provide advice as necessary.

Overview of Commercial Remote Sensing Aspects of the Rumsfeld, National Reconnaissance Office and NIMA Commission Reports

Kevin O'Connell of RAND presented an overview of these three 2000/2001 reports and how they affected national security space issues. He stated that all of the reports were disappointed with the results of Presidential Decision Directive-23 (Foreign Access To Remote Sensing Space Capabilities). He discussed the "billion dollar" NIMA deal and talked about how it distracted industry from pursuing a commercial market. Additionally the reports criticized the U.S. Government for its lack of policy coordination surrounding the CRS industry and how it has led to a jumbled U.S. approach. Mr. O'Connell also stated the reports complained about the length of the licensing process, and endorsed approval of 0.5 meter licenses. The reports also discussed how remote sensing licensing should be a tiered process where the commercial sector could support low end needs and U.S. systems could then be used to support high-end systems and more point targets. The reports considered NIMA as a central user/depository of commercial data, and the primary beneficiary of increased capabilities of commercial systems.

Licensing Procedures and Practices

Tim Stryker of NOAA provided an overview of U.S. CRS licensing procedures and practices. This included an overview of the initial licensing process as well as the process for license amendments and foreign agreements. Metrics were provided on the amount of time intended by law and regulation to issue a license as well as average actual response times. The committee discussed the need for companies to get realistic information on the amount of time needed to receive a license but also worried that setting longer deadlines would become a self-fulfilling prophecy. Discussion focused on the need to fix the process by addressing what is behind the delays in the review and decision-making process. The committee considered possible means for prior U.S. Government consideration of new technologies and operating thresholds, as a means to expedite the licensing process.

Overview of NOAA's Enforcement Program

Rick Shimon of NOAA provided an overview to the committee of the Department of Commerce's enforcement mandate, NOAA's compliance procedures including its "cradle to grave" audit and inspection program. Mr. Shimon presented information on the issue of imagery sales and their relationship to U.S. laws and regulations. He also presented an overview of NOAA procedures for limiting commercial services during a national security or foreign policy crisis.

OPEN SESSION

The NOAA Advisory Committee for Commercial Remote Sensing (ACCRES) was convened at 1:10 p.m. on January 14, 2003, at the Rand Washington Office in Arlington, Virginia. In accordance with the provisions of Public Law 92-463, the meeting was open to the public.

The Chairman, Robert Winokur thanked Committee members and members of the public for attending the second meeting of ACCRES. The objective for this meeting was to continue gathering data and working towards a work plan for future meetings of the Committee.

At the request of the Chairman, each person in the room briefly identified themselves and their affiliations. An attendance list is provided at Appendix 1.

Committee members present:

Mr. Richard Cooke, Research Systems Incorporated
Mr. John Copple, Space Imaging LLC
Mr. Martin Faga, MITRE
Dr. Joanne Gabrynowicz, University of Mississippi
Dr. Charles Groat, U.S. Geological Survey
Ms. Roberta "Bobbi" Lenczowski, on behalf of Lt. General James Clapper, National Imagery and Mapping Agency
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Opening Remarks

The Chairman presented apologies for the absence of NOAA's Assistant Administrator for Satellite and Information Services, Mr. Gregory Withee, who had been called to another NOAA meeting. Mr. Stryker welcomed everyone to the meeting on behalf of NOAA. He reported that a very helpful closed session had been conducted during the morning, and the full day meeting provided an opportunity to brief the Committee on a variety of information requested at the previous meeting. Mr. Stryker thanked Ms. Karen Dacres, NOAA Satellite Programs Counsel, for her service to the Committee and wished her well as she moves on to a new appointment.

Mr. Stryker reviewed meeting protocol, requesting that members of the public hold their questions for the period set aside on the agenda for public comments. He also invited written comments at Timothy.Stryker@noaa.gov.

Review of NOAA/NASA/ASPRS Market Study Findings

Charles Mondello, Pictometry, Inc.
(Presentation provided as Appendix 2)

Mr. Mondello briefed the Committee on the findings of the 10-year Remote Sensing Industry analysis undertaken by the American Society for Photogrammetry and Remote Sensing (ASPRS). The study was initiated through a 1999 5-year Space Act Agreement with NASA to develop a 10-year Remote Sensing Industry (RSI) market forecast and deliver an analysis of the industry conducted by industry members. In 2002, ASPRS partnered with NOAA for documentation of the forecast results. Also in 2002, the study was expanded to include both short- and long-term effects of the September 11, 2001 terrorist attacks.

The study is divided into 4 phases. Phase 1, completed in December 2000, characterizes the baseline U.S. RSI looking at everything but the end user. Phase 2 focuses on end users. Phase 3 will validate the end users. Phase 4, due for completion in December 2004, includes delivery of the completed comprehensive market forecast. Survey data is drawn from relevant literature, the Internet, surveys of ASPRS membership, and surveys of industry CEO and CFOs. ASPRS is also conducting interviews and focus groups across the country. (Responses are not for attribution).

Data compiled to date on space-based and aerial services indicate industry growth of 9-14% per year. However, these data do not include information collected in 2002 to assess the market impact of September 11. A key finding reveals significant fragmentation in the industry with the bulk of the RSI composed of relatively small firms with 100-500 employees and median 2001 annual revenue of $3.7M. The study also found that national and global security, civil government requirements and mapping were the largest RSI sectors. An issue to be addressed in the continuing study effort is to understand why the real estate, entertainment, and insurance sectors have to date found little to no use for remote sensing products. The study shows that space-based and aerial data complement one another, and that sales of both continue to grow.

Technological innovations are needed to deliver data rapidly and to provide information that is valuable to the customer. There is a tendency to provide very enhanced data sets, providing problems for customers who are often challenged by even basic data sets. The study found that governmental influence is pervasive, with legislation and policies restricting U.S. remote sensing sales while foreign companies have no such hindrances to international commerce.

Findings related to workforce issues, competition, and the impact of the U.S. economy on the industry were largely drawn from the Internet and surveys. The demand for entry-level personnel exceeds supply and the data indicate that RSI workers tend to stay for a very short time. Those who do remain in the industry tend to stay for a long time. There is a concern about foreign competition both because the RSI is often part of, or supported by the government in other nations, and because a significant number of foreign students are trained in the U.S. and then return to their homeland to staff the foreign competition.

Spatial resolution trends show that the greatest need is for data in the 1-3 ft. range, which currently is the least well-met. After resolution, Digital Elevation Models (DEMs) will be a key driver for the industry in the future. The demand for higher geospatial accuracy is growing, though projections show a very significant shortfall in high-quality elevation data.

In conclusion, Mr. Mondello stated that the study found a very fragmented industry due to both the range of sensor technologies and the large number of small companies involved in the industry. He welcomed other organizations' involvement in the study.

Chairman Winokur indicated that there might be interest on the part of ACCRES in obtaining further data on the international market.

Current Foreign Capabilities, Laws, and Policies

Foreign Land Imaging Satellite Programs
William Stoney, Principal Engineer, Mitretek
(Presentation provided as Appendix 3)

Mr. Stoney reviewed the outlook for land imaging satellites for the next 5 years. His source for this presentation was drawn solely from publicly-available information. He anticipates a total of 25 satellites offering resolution of 1 meter or better to be in service within the next five years. These will be launched by nine government organizations and companies in two nations. The lowest resolution will be provided by U.S. commercial operators Ikonos, QuickBird and OrbView, each promising 0.25m resolution.

The French Pleiades satellites will serve both civilian and military needs and promise 0.7m optical resolution. The German TerraSAR system is government-funded primarily for commercial operations, while Italy is planning a 3-satellite 1 meter impulse response (IPR) Synthetic Aperture Radar (SAR). The Rapid Eye commercial system would potentially compete with the Landsat Data Continuity Mission (LDCM). India's remote sensing satellites are primarily designed for Indian use and are land- and environment- oriented. The first systems the Japanese intend to launch (initial launch anticipated mid 2004) will provide 1m resolution, equal to anything U.S. commercial operators could provide. China has plans to launch four more remote sensing satellites during the coming 5 years as part of a disaster management constellation. Russia has plans for a three-satellite system for civil and commercial use. Central Trading Systems and Land Info International have been offering archived Russian satellite data at 0.95-2.0m resolution for some time without great success. Three small satellites developed by Surrey of the U.K. are scheduled -- two of those for the Disaster Management Constellation international consortium.

Political and strategic concerns appear to demand national control of land imaging. Hence, even small countries want their own satellites. The dual use approach prevalent in Europe is a matter of concern for the future of the U.S. CRS industry. The U.S. technological lead in optical systems is small and getting smaller as an increasing number of other nations develop their own systems. The United States is the exception to other countries/firms, all of whom are developing civil and commercial SAR systems.

Mr. Stoney noted that nobody is looking at the total picture concerning civil satellites. While not under the purview of this Committee, Mr. Stoney advocated a database for the ongoing evaluation of land imaging satellites. He suggested a program to purchase and evaluate image products, as they become available and cited the NASA/NIMA/USGS JACIE (Joint Agency Commercial Imagery Evaluation) program as a success story in this area.

Foreign Commercial Remote Sensing Laws and Regulations: Current Legal Regimes: "A Brief Survey of Remote Sensing Law Around the World"
Joanne Gabrynowicz, University of Mississippi
(Presentation provided as Appendix 4)

Dr. Gabrynowicz has considered numerous legal regimes, studied trends and looked at some specific law in developing a review of legal regimes related to CRS. Most countries have some general space laws.

Some nations are starting to address specific issues such as launch safety, sovereignty, and liability, but to date very little space law relates to Earth observation remote sensing. Where remote sensing is addressed, policy directives are employed rather than statutes and are used largely to meet compliance with U.N. treaties and to establish international compliance. A hybrid public/private legal environment is emerging. There is a clear divergence in approaches to remote sensing law. In the U.S. the law is driven by emphasis on the satellite; in Europe the focus is on what is done with the data derived from the satellite.

The Canadian remote sensing regime is very similar to the U.S. approach. However, because Canada has a parliamentary system, laws tend to be initiated on the executive side of government, while in the United States., the process tends to move in the opposite direction. The Radarsat mission is contractually obliged to comply with Canadian policy in a manner very similar to U.S. Presidential Decision Directive 23.

The system in Europe is very different from that in the United States. Operations and data are inextricably intertwined. There are no private systems and no licensing. Governments operate systems on a commercial basis. The European approach is driven by the data, focusing on the user and the money the user pays. A Database Protection Directive stresses user payment.

A contractual and administrative system regulates remote sensing issues in France. There is no legal regime. A mechanism exists to discuss a commercial system and legal terms appear in a relevant departmental report. Dr. Gabrynowicz noted that in France, a privatized system is one that has been paid for by the government then moved into the commercial sector. In general, the government is looking for a return on investment of public funds.

India has no law relating to remote sensing but a comprehensive data policy views data from all sources as existing for the good of the public. Distribution is controlled (e.g., military installations are removed from commercial imagery).

In Japan, all commercial space activities are limited exclusively to peaceful purposes. At present no licenses are required, there are no restrictions, and no reporting requirements. However, there are no CRS operators in Japan yet. Currently NASDA retains all intellectual property rights to data from government satellites.

The Russian Federation is subject to broad federal legislation under which remote sensing includes environmental monitoring and meteorology. Insurance is required. Conflicts between intelligence and commercial data use are an issue.

In the United Kingdom, the tenor of the remote sensing legal regime was set by the House of Lords in 1984, with the mandate that the main effort should be the ground and user segments. U.K. systems specialize in radar and data is distributed nationally. The Space Act of 1986 makes no mention of remote sensing but authorizes the government to require licenses. The British government is currently developing legislation to ensure that the government does not pay for any aspects of CRS provision or distribution.

Space law is emerging around the world and there are countries that need help in developing their legal regimes. Bilateral and multilateral agreements are very important in formulating customary law at the international level. The CRS legal regime is evolving on a satellite-by-satellite basis and will have an impact on the international space law environment because of the hybrid nature of the regime.

Civil Agency Use of Commercial Remote Sensing Products and Services and Related Licensing Issues

Sherri Stephan, Professional Staff Member, Subcommittee on International Security, Proliferation, and Federal Services, Government Affairs Committee, U.S. Senate
(Presentation provided at Appendix 5)

Dr. Stephan emphasized that the Congressional Research Service assessment of remote sensing data use by civilian federal agencies dealt only with civilian agency use and did not include intelligence applications. 20 agencies were surveyed; 19 responded. 11 agencies make extensive use of remote sensing data. The full report is available at www.senate.gov/~gov affairs/ispfs.htm.

In her presentation, Dr. Stephan gave particular attention to licensing concerns. Responses were received from participating agencies in the summer of 2001 and an additional segment was added to obtain responses on the impact of September 11.

The study found that research agencies want raw data while other agencies want derived products. The Committee briefly discussed the extent to which USAID employs remote sensing data. Dr. Gabrynowicz stated that the Committee should keep in mind that remote sensing is a staple in conflict resolution and has many foreign policy applications.

Sharing data is a major problem. Sharing between agencies, between an agency and a company, and between an agency and an overseas entity create various licensing issues. There are also difficulties if new uses arise after data has been shared. As a result, some agencies choose not to use CRS data in order to avoid these concerns. USAID is unable to share data internationally because their overseas partners cannot afford the licensing charges. Some agencies find that their overseas contacts are unable to download data and others lack trained personnel.

The primary uses for CRS within U.S. civil government agencies are for natural resource management, conservation, and environmental issues. USDA, FEMA, Commerce, Interior, State, USAID and EPA use CRS extensively for these purposes. Transportation and HHS indicated much lower usage. Lack of communication within some agencies could mean that there is possibly more use than reported. Aerial data are used extensively by agencies, aerial and space-based data are used in a complimentary fashion.

Agencies' concerns about CRS data availability included the relatively small number of satellites collecting needed data, the time it takes to get data in a useful form or the availability of data from a specific time period, and anxiety about continuity of availability of data from a specific source.

The number one concern with access to data is the cost of CRS data, with licensing concerns about sharing commercial data a close second.

Agencies also identified a workforce issue. There is a lack of in-house expertise because it is difficult to attract and retain trained remote sensing staff. Further, a lack of vision and limited understanding of what can be achieved with CRS on the part of upper management is stifling progress. Additionally, data from non-NOAA satellites may be restricted to research use, precluding other beneficial uses.

As an example, Dr. Stephan drew attention to the problems encountered by the Coast Guard , where licensing constraints severely limit the service's ability to distribute valuable data to partner agencies, such as port authorities, with which it works. Committee members wondered how the Homeland Security Agency will deal with licensing and sharing issues.

The report did not contain any concluding recommendations, but general recommendations from the participating agencies are included in the final section of the report. Dr. Stephan expressed the hope that the E-government Act will clarify some issues.

In response to a query from Fernando Echevarria from the State Department, Dr. Stephan assured the Committee that Congressmen and Senators are hearing from local users such as police chiefs who want to use CRS. As a result, there is recognition on Capitol Hill that issues of access to data, cost, and licensing considerations are a growing concern. The Senate can be expected to take up the question of CRS licensing at some point.

In Committee discussion following Dr. Stephan's report, Mr. Copple suggested that pricing must be a factor if people do not want to pay for licenses. The chairman said that some parts of some agencies see this to be a legitimate problem. Dr. Gabrynowicz reported that the U.S National Research Council is undertaking a new study on licensing issues for civil agencies and asked whether NOAA might form a liaison with that effort.

Public Comments

Jim Plasker (ASPRS) stated that the problem of license cost is a value versus cost issue. At present, the cost of the data set is high relative to the perceived value of the data. If cost, not licensing is the issue, then volume becomes an issue. He suggested viability will come with expanded volume of customer-optimized data. Mr. Plasker also emphasized that the lack of an adequately developed workforce and poor standards of task-specific education of the customer base had been highlighted by the ASPRS study and the Senate Subcommittee study. Emphasis needs to be placed on growing the industry and getting the costs down.

Dr. Lenczowski stated that NIMA is developing a new generation of contracts that simplify the licensing issue by requiring a single license that would cover the data inventory and use across domain users. She stated that vendors had been receptive to this idea.

Allan Brown (Allan Brown Consulting) urged the government to stay out of licensing matters and leave partners to resolve licensing issues as part of their business plans.

Ray Williamson (George Washington University) reported on a workshop held in the spring of 2002 by George Washington University to look at ways to improve the transfer of remote sensing data. The meeting revealed that the greatest difficulties were encountered in sharing derived data across political and institutional boundaries. One example is the failure of agencies to work together after September 11.

Mr. Plasker indicated that the major debate at their conference last year was about the complexity of CRS licensing and policy. He made a plea for the ASPRS to make recommendations, not just observations. Mr. Mondello stated that ASPRS is trying to do just that. The Chairman encouraged agencies to work together more and share funding responsibility where appropriate sooner rather than later.

Discussion Among the Committee Members

The Chairman suggested that the Committee may be interested in having the ASPRS study examine the international demand for data. There is a perceived demand for data and Mr. Keating suggested it could

be possible to summarize what overseas users are looking for. He proposed to discuss the matter further with NOAA staff and circulate a proposal to the Committee.

Discussion moved on to assessment of competition. Mr. Leonard was concerned that studies always lag 2 years behind reality. The Chairman noted that the afternoon's briefings had been helpful, but a database has to be a living document so that NOAA and other agencies can use it to determine licensing needs in the future. The chairman expressed an interest in U.S. development of high-resolution civil and commercial SAR systems.

Next Steps

Vice Chairman Kevin O'Connell, led this part of the discussion. He proposed that the next Committee meeting be held in April or May when more information will be available from the National Space Policy Review.

The first and second meetings of the Committee have focused on gathering information from the major studies. That task has been completed. However, during this session the Committee had only dealt with the tip of the iceberg on the question of where the U.S. industry stands relative to various competitors. This is a multidimensional problem that is much broader than the issues considered to date. The National Space Policy Review should provide additional background and guidance to agencies on these issues.

Mr. O'Connell proposed establishing work teams that will conduct business informally (electronically) and provide briefings on progress at the next public meeting.

Summary by the Chair

The Chair and Vice Chair will review the comments made at this meeting and will circulate them to everybody over the next few weeks. They would also develop a framework for future committee endeavors. Comments will be welcome.

Mr. Faga of MITRE expressed the appreciation of the Committee for all the briefings provided at this meeting.