CONFERS NEWSLETTER
First Quarter 2020

From the Desk of the Executive Director

As we enter the beginning of a new decade full of promise for the commercial space sector, I think it's worth taking a step back to look at how far our little corner of it has come. CONFERS was launched by DARPA in November 2017 with the lofty goal of bringing together the international commercial satellite servicing industry to develop safety best practices and technical standards.

Two years later, I can say with zero reservations that we have managed to meet or exceed those goals. As of January 1, 2020, CONFERS is up to 35 industry members, comprising of companies from the United States, Belgium, France, Germany, Canada, Japan, and the United Kingdom. Over the past two years, we organized seven workshops that brought together representatives from our members along with government and academic experts to begin discussing what satellite servicing standards might look like. CONFERS has published a set of Guiding Principles, two versions of its Recommended Design and Operating Practices, and a Mission Phase Diagram, which reflect the consensus of our members.

Based on these documents, we have submitted a proposal to the International Organization for Standardization (ISO) for a draft standard on commercial satellite servicing. That proposal was approved by seven member states who are actively contributing to updating and refining what we hope will soon be the first international standard for satellite servicing. We also organized two very successful iterations of our Global Satellite Servicing Forum (GSSF), which has brought our members and the broader community together to talk about the future of commercial satellite servicing.

As we head into 2020, our plan is to continue this great work, expand our membership, and increase our engagements with government on policy and oversight of commercial satellite servicing. We have a series of invite-only workshops lined up in Europe and the United States and are also planning on adding additional events for public outreach and government engagement. We also plan to once again end our year with the third GSSF.

Read on for more details about the outcomes of our most recent GSSF, the progress being made on the draft ISO standard, and what we have planned for 2020!

Sincerely,

Dr. Brian Weeden
Executive Director, CONFERS
Director of Program Planning, Secure World Foundation

Second Annual Global Satellite Servicing Forum Highlights Anticipated Near-Term Milestones

By: Ian Christensen, Stakeholder Engagement Coordinator

The second annual Global Satellite Servicing Forum (GSSF) was hosted by CONFERS on October 1-2, 2019, in Washington, DC. The program expanded to 1.5 days as part of developing it into the premier annual public conference for discussion of global satellite servicing technology, market, and policy developments. The 2019 GSSF was jointly chaired by Jim Armor from SpaceLogistics, LLC, the current Chair of the CONFERS Executive Committee, and Dr. Brian Weeden, CONFERS Executive Director.

Highlighting the international significance of commercial satellite servicing, the 2019 GSSF featured high-level keynote addresses from government leaders from the United States and Japan. The GSSF kicked-off with an introductory keynote from Michael Leahy, Director of the Tactical Technology Office of the Defense Advanced Research Projects Agency (DARPA). A luncheon keynote on policy and regulatory considerations for satellite servicing in Japan was delivered by Hiromichi Suzuki, Director of the National Space Policy Secretariat in the Japanese Cabinet Office. On the second day of the Forum, Kenneth Bowersox, NASA's Associate Administrator (Acting) for Human Exploration and Operations, delivered a keynote on the links between satellite servicing and space exploration.

Through a mix of panel presentations, interactive discussions, and individual talks, the 2019 GSSF explored current developments related to satellite servicing focusing on three thematic elements:

- The Market and Economic Challenges & Opportunities of Satellite Servicing
- Policy and Regulatory Factors to Enable Satellite Servicing
- Satellite Servicing in the Broader Context of Space Activities, Including Exploration and Sustainability

Presentations and discussions throughout the GSSF highlighted and identified key programmatic milestones anticipated by the satellite servicing community in 2020. These include the launch of and first on-orbit servicing operations to be conducted by SpaceLogistics' Mission Extension Vehicle; in-orbit demonstration of refueling, satellite servicing, and active debris removal related technology by companies such as Astroscale, Altius Space Machines, and Orbit Fab; the announcement of next steps in DARPA's Robotic Servicing of Geosynchronous Satellites (RSGS) program; and an expected announcement of European and Japanese government commitments to fund removal of specific space debris objects.

The GSSF also served to highlight milestones achieved by the CONFERS Consortium itself, including the progress on an initial standard (ISO 24330), based on CONFERS recommendations, a working draft by the International Standards Organization (ISO) and the release of the CONFERS On-Orbit Servicing (OOS) Mission Phases definitions. The presentations from the 2019 GSSF are available on the conference website.

Updates on ISO Draft Standard on Commercial Satellite Servicing

By Fred Slane, Executive Director, Space Infrastructure Foundation

One of the main missions of CONFERS is to foster the development of technical standards to enhance the safety of commercial satellite servicing. Since its inception in 2017, CONFERS has been carrying out a work plan to achieve this goal. The process began by convening CONFERS members and government experts through our workshops to develop the CONFERS Guiding Principles and Recommended Design and Operating Practices.

In April 2019, we took the next step by providing a draft standard developed from these principles and practices to the International Organization for Standards (ISO). The CONFERS membership approved submission of a work package to the ISO Technical Committee for Aircraft and Space Systems (TC20) Subcommittee for Space Systems and Operations (SC14). In June 2019, the national delegations in Working Group 3 (WG3) of SC14 approved a new work item on ISO 24330:

Rendezvous and Proximity Operations (RPO) and On-Orbit Satellite Servicing (OOS) – Programmatic Principles and Practices.

In November 2019, WG3 of SC14 held their semiannual meeting in St. Petersburg, Russia, to continue discussions on multiple work items, including ISO 24330. The group present in St. Petersburg included good representation by CONFERS members within the country delegations, as well as from the other countries that expressed interest in the standard (notably Russia and the Ukraine). Discussion was entirely positive. There was a discussion on terminology such as "commercial" and "servicing" that reflected prior lexicon work done by the CONFERS Technical Working Group. There was also a discussion on details of the concept (e.g., control and operations volumes, and the difference, if any, between them), but in general all the participants supported the need for a new standard on this topic.

On behalf of CONFERS, and the ISO 24330 effort, I also made presentations to Working Group 2 (Interfaces, Integration and Test) and Working Group 7 (Orbital Debris), as they were both meeting at the same location and time. A current set of 24330 material was sent by email to WG1 (Design Engineering) on their request for inclusion in their meeting later in November in Berlin.

In the meantime, WG3 will continue to review and revise the draft of ISO 24330 electronically ahead of their next in-person meeting in Dnipro, Ukraine, the last week of May 2020. We anticipate the draft may move to the Committee Draft phase of the ISO process in the second half of 2020.

CONFERS Activities for 2020

By: Rick Nobbs, CONFERS Program Manager

Building on a very successful past year, 2020 is lining up to be even more exciting for the Satellite Servicing Community. CONFERS has built a stimulating schedule to ensure engagement with all our members in the United States and beyond.

This year, we will have three CONFERS workshops focusing both on technical and policy objectives as well as the annual General Assembly (for CONFERS members only) and the Global Satellite Servicing Forum (GSSF, open to the public).

Event	Date	Location
Japan Space Forum –International Symposium on Ensuring Stable Use of Space *CONFERS Presentation*	Feb 27-28	Tokyo, Japan
Workshop 8	March 24-25	Brussels, Belgium
Clean Space Industrial Day *CONFERS Presentation*	March 30 - April 3	Noordwijk, Netherlands
Workshop 9	May/June	Washington, DC
Workshop 10	July/August	Washington, DC
General Assembly / GSSF	October	Los Angeles, CA

We will release the agenda for our workshops and associated reference material in the weeks preceding the event. You can also find more event information on our website at https://www.satelliteconfers.org/news-events/.

As always, we value your input on topics for discussion, so please don't hesitate to send your ideas to CONFERS@ATI.ORG.

CONFERS Members In The News

This section includes recent news articles from any CONFERS member that shared one with us. If you would like your event to be included in the next newsletter, please send it to confers@ati.org. All articles can also be found in the News section of our website at https://www.satelliteconfers.org/news/

October 9, 2019 – Northrop Grumman MEV-1 and Intelsat 901: Breathing Life Into an Ageing Satellite
November 27, 2019 - Maxar Smart satellites to the rescue of broken satellites
November 27, 2019 - Protean Eleven Scientist-Astronaut Candidates Graduate in Possum Class 1802
November 28, 2019 - Maxar How Robot Arms Could Make Big Satellites So Much Cheaper
December 7, 2019 Astroscale pursuing military customers for in-orbit services, debris removal
December 10, 2019 OneWeb and OneWeb Satellites bolster commitment to Responsible Space with advanced grappling technology from Altius Space Machines
December 27, 2019 - iBOSS #SpaceWatchGL Op'ed: My 2019 in a Review
December 30, 2019 Maxar to sell Canadian unit for $765 million
January 8, 2020 Building in Space: Using Maxar's Robotics to Enable Sustainable Space Operations
January 28, 2020 – Altius Space, Astroscale Here's How Robots Could Repaid or Dispose of Broken Satellites in Orbit