

XXVIII Planetary Congress Association of Space Explorers

September, 2015 • Sweden

XXVIII CONGRESS REPORT



XXVIII Международный Конгресс
Ассоциация Участников Космических Полетов
Сентябрь, 2015 • Швеция

Association des Explorateurs de l'Espace

Organización der Raumfahrer

Съюзът на участниците в космоса

Ассоциация

Участников Космических Полетов

اسوسیة المشاركين في رحلات الفضاء

Asociación Exploradores Espaciales

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Съюзът на участниците в космоса

Ассоциация Участников Космических Полетов

اسوسیة المشاركين في رحلات الفضاء



Photo: Adam af Ekenstam

Front row, left to right: Tony Antonelli, Bill Anders, Susan Helms, Stephanie Wilson, Mary Ellen Weber, Cady Coleman, Pam Melroy, John Fabian, John-David Bartoe, Oleg Kotov, Christer Fuglesang, Viktor Savinykh, Soichi Noguchi, Zhang Xiaoguang, Dorin Prunariu, Nikolai Budarin, Rusty Schweickart, Alexander Alexandrov, Bo Bobko, Jeff Hoffman, Bonnie Dunbar, Alexei Leonov, Michael Lopez-Alegria, Anna Fisher, Michael Fincke, Vladimir Remek, Anousheh Ansari, Elena Serova, Franz Viehbock

Second row, left to right: Mark Brown, Michael McCulley, Ulrich Walter, Tom Henricks, Ulf Merbold, Ernst Messerschmid, Gerhard Thiele, Helen Sharman, Chiaki Mukai, Carl Walz, John Creighton, Alexander Ivanchenkov, Ed Lu, Jeff Hoffman, Richard Richards, Oleg Novitskiy, Oleg Artemiev, Toktar Aubakirov, Owen Garriott, Richard Garriott, Samantha Cristoforetti

Third row, left to right: Drew Gaffney, Mario Runco, Jr., Ken Reightler, Jr., Chris Hadfield, Miroslaw Hermaszewski, Klaus-Dietrich Flade, Sergei Treshchev, Bertalan Farkas, John Phillips, Vyacheslav Zudov, Jim Voss, Yuri Usachev, Jean-Pierre Haigneré, Anton Shkaplerov, André Kuipers, Drew Feustel, Don Pettit, Greg Olsen, Valeri Tokarev, Bill Oefelein, Randy Bresnik

Back row, left to right: Georgi Ivanov, Yuri Baturin, Alexander Balandin, Pavel Vinogradov, Alexander Skvortsov, Tom Jones, Sergei Revin, Alexander Samokutyaev, Yuri Gidzenko, Sergei Zalyotin, Sergei Avdeev, Luca Parmitano, Bruce McCandless II, Tom Marshburn, Anatoli Ivanishin, Reinhold Ewald, Alexander Gerst.



Ninety-two astronauts and cosmonauts from nineteen countries gathered September 20-27, 2015 in Stockholm and Växjö, Sweden, for the XXVIII Planetary Congress of the Association of Space Explorers.

Hosted by Swedish astronaut Christer Fuglesang, the theme of the Congress was "Inspired by Space," recognizing the role that high-technology research, innovation and creativity play in inspiring people to great achievements in human and robotic space exploration.

Arriving in Stockholm throughout the day on Sunday, September 20, the fliers and their spouses enjoyed a relaxed dinner and a warm welcome from Christer Fuglesang and Eva-Louise Erlandsson Slorach, Mayor of the City of Stockholm at the ornate Stockholm City Hall.

Monday morning, the fliers and companions gathered outside the Grand Hotel for the official Congress group photo. Immediately following, the group moved a short distance to the Stockholm Concert Hall for the Opening Ceremony of the XXVIII Congress. Presided over by Christer Fuglesang and ASE president Soichi Noguchi, the Ceremony opened with music by the KTH Director Musices, and featured welcome remarks by Peter Gudmundson, president of the Royal Institute of Technology (KTH), Olle Norberg, General Director of the Swedish National Space Board, and Helen Hellmark Knutsson, Swedish Minister for Higher Education and Research. Noguchi spoke on behalf of the ASE delegates and companions, recognizing the attending ASE Founders in the hall and initiating a moment of silence for Russian cosmonaut Anatoli Berezovoi, who passed away in the interval since the previous Congress.

After a short coffee break, the fliers reconvened for the Theme Session of the Congress. Astronauts Chris Hadfield, Elena Serova and Samantha Cristoforetti described their experiences in space and how spaceflight can best serve to inspire others to an interest in science and technology, and professor Anders Ynnerman conducted a guided tour



ASE President Soichi Noguchi and XXVIII Congress host Christer Fuglesang welcome delegates at the Opening Ceremony of the Congress.



Italian astronaut Samantha Cristoforetti describes her record-setting 200 day space flight mission.

of the virtual universe using a unique, real-time 3-D visualization tool. Frida Backjanis, a young Swedish student concluded the Theme Session with a very moving account of the role space played in inspiring her to a future helping others realize their dreams.

While the fliers were in session, the companions traveled by bus just over the water to Gamla Stan, Stockholm's Old Town, for a walking tour and lunch at the Thessin Palace with Stockholm County Governor Chris Heister.

After lunch in the Reactor Hall back at KTH, the fliers gathered for the first technical session of the Congress, "Advances in European Space Exploration." Co-chaired by ASE member John-David Bartoe and IAF Human Spaceflight Committee Chair Cristian Bank, the session marked the first joint ASE-IAF technical session at an ASE Congress. After opening remarks by the co-chairs, the session featured updates on recent significant advances in European space activities, including both human and robotic exploration activities and plans. Jean-Jacques Dordain, advisor to the president of CNES reported on advances in European space capabilities, German astronaut Gerhard Thiele reported on Europe's progress and plans for human spaceflight, and Patrick Sundblad from KTH described advances in human space research. ESA Rosetta Flight Director Andrea Accomazzo concluded the session with a riveting briefing on his team's experience with how to rendezvous, orbit and land on a comet.

Monday evening, fliers and companions were treated to a very special evening with dinner and entertainment at the world-famous Vasa Museum in Stockholm. The evening was sponsored by OHB Sweden and Scania and featured guided tours of the 17th century Vasa and museum, followed by a dinner of traditional Swedish delicacies and cuisine.

Tuesday morning, the fliers returned to KTH for a technical session on Space Research, co-



Former ESA Director General Jean-Jacques Dordain describes advances in European space science, research and exploration.

Photo: Adam af Ekenstam



Photo: ASE

The Vasa Museum

chaired by astronaut Bonnie Dunbar and KTH professor Katia Grillner. The session opened with a taped introduction and welcome from ASE member Scott Kelly, currently onboard and nearly halfway through his one-year mission on the International Space Station.



Bonnie Dunbar and Chiaki Mukai lead the discussion on international space research, development and utilization.

Photo: Adam af Ekenstam

In the first part of the session, astronauts Tom Marshburn and Chiaki Mukai briefed the group on advances in space research and activities on ISS that more clearly define the challenges for deep space human exploration of the solar system and Katherine Freeze of the Nordic Institute for Theoretical Physics reviewed the state of our contemporary knowledge about cosmology. The second half of the session included a series of short briefings from KTH researchers on remote sensing, astrophysics, geodesy, and working on Venus.

The companions, meanwhile, departed early Tuesday for a visit to the Drottningholm palace theatre followed by a tour of Lake Mälaren and lunch aboard the boat, before returning to meet the fliers later that afternoon at the Grand Hotel.

Before lunch with KTH students at the KTH Student Union House on Tuesday afternoon, astronaut Michael Lopez-Alegria co-chaired the third technical session of the Congress, "EVA: 50 Years and the Future" alongside legendary Russian cosmonaut and first human spacewalker Alexei Leonov.



Photo: Adam af Ekenstam

Michael Lopez-Alegria leads a veteran astronaut panel discussing the history and future of extra vehicular activity.

Photo: Adam af Ekenstam



Italian astronaut Luca Parmitano recounts the difficulties he faced on his second EVA from the International Space Station.

The session featured a panel of veteran spacewalkers including Bruce McCandless II, who recounted his experiences developing and flying the first MMU, Soichi Noguchi who discussed the value of spacewalks for orbital assembly, Luca Parmitano, who gave a riveting account of the emergency situation he encountered on his second EVA, and Carl Walz, who described future spacesuits and their suitability for a variety of EVA tasks in open space and on planetary surfaces. Russian cosmonaut Oleg Kotov concluded the session with a discussion of the development of current and future Russian

spacesuits. Before returning to the Grand Hotel, the fliers inaugurated the newly built Space Pavilion on the Royal Institute of Technology campus.

After a brief rest at the Grand Hotel, the fliers, companions and guests traveled by bus to the nearby Royal Palace for a private audience and reception with H.M. King Carl XVI Gustaf and HRH Crown Princess Victoria. After a welcome toast and remarks by the King and Soichi Noguchi, the delegates returned to the Grand Hotel for a special dinner to honor and award the ASE Planetary Award, the Crystal Helmet, to Sven Grahn for his efforts and success at inspiring genera-



Photo: D. Prunariu

The ASE Executive Committee presents the Crystal Helmet to Swedish astrophysicist Sven Grahn.

tions of students in Sweden to careers in science, math astronomy and engineering.

Wednesday morning, the fliers paired up and visited 43 schools and universities across the Stockholm and Mälardalen regions, as well as the Swedish Parliament, as part of the traditional ASE Community Day activities. That afternoon, fliers and spouses had free time to tour Stockholm on their own, before an evening reception, auction

Photo: Henrik Palmberg



Swedish astronaut Christer Fuglesang greets students on Community Day

and reunion concert of the astronaut band Max Q at the Tandstickspalatset to benefit the educational activities of the international Association of Space Explorers.

Thursday morning the fliers boarded charter flights at the nearby Bromma airport for a short flight to Linköping and headquarters of Swedish defense industry leader Saab. The day featured tours of the Gripen manufacturing and assembly buildings, briefings on innovative technologies under development by Saab, and virtual flights in the Gripen full-motion simulators. Also while at Saab, the four ASE chapters held regional meetings to discuss activities and projects in their respective areas. After dinner at the nearby Malmen Air Force Museum, the fliers re-boarded the Saab aircraft for the onward flight to Växjö, where the delegates would conduct the remainder the XXVIII Congress.



Photo: Saab

ASE members pose with a Gripen advanced technology demonstrator at Saab headquarters in Linköping.



Students greet the arriving astronauts and cosmonauts on Community Day assignments in Småland.

While the fliers visited Saab, the companions departed Stockholm by bus and traveled to Vadstena Castle for lunch and an organ recital at the Abbey Church of Vadstena. After arriving in Växjö later that afternoon, they were welcomed at a reception by Kronoberg County Governor Kristina Alser at the Governor's Residence in Växjö while they awaited the fliers arrival from Linköping.

Friday morning, the astronauts and cosmonauts spread out for part 2 of their Congress Community Day activities, visiting grade school children all across Växjö and Småland. After lunch

Photo: D. Prunariu



Mike Fincke and Oleg Kotov chair the technical session on Future Space Vehicles.

with students at the Linneaus University in Växjö, they convened at the University's Ikea Hall for the fourth technical session of the Congress.

Co-chaired by astronaut Michael Fincke and cosmonaut Oleg Kotov, the session on "Future Space Vehicles" featured presentations by astronaut Stephanie Wilson on future US plans for exploration of the Moon and Mars, a briefing on potentially disruptive propulsive technologies beyond chemical rockets by Laetitia Garriott de Cayeaux, and an overview of Russia's fu-

ture vehicles and exploration architectures by veteran Russian cosmonaut Pavel Vinogradov.

After returning to the nearby hotels in Växjö to freshen up, the fliers and companions returned to Linneaus University for dinner with the students and faculty. A highlight of the evening was the Pinning Ceremony, where new members and first-time Congress attendees receive their ASE logo lapel insignia. With Apollo 8 astronaut Bill Anders and freshly returned-to-Earth Danish astronaut Andreas Mogensen both receiving their pins, it marked a new record at a Congress for contrasting time intervals between flight and attending a Planetary Congress.

Saturday morning, the fliers returned to Linneaus University for the final technical session of the Congress. Co-chaired by Romanian cosmonaut Dumitru-Dorin Prunariu and Linneaus University professor Stephan Carius, the "Next Human Destinations" session featured a report by astronaut Andreas Mogensen on his very recent flight to the International Space Station, a compelling briefing by astronaut Mark Brown on the challenges and opportunities to be expected by greater commercial involve-



Photo: Johannes Rydström

The ASE regional presidents award the sixteen first time attendees their ASE logo insignia at Linneaus University

ment in human space exploration, a critical review of the post-Apollo direction of the US space program by veteran astronaut Bill Anders, a Russian overview of exploration opportunities and desirable human deep space destinations by Russian cosmonaut Anatoli Ivanishin, and a tour of the space archeology landscape by Linneaus University professor Cornelius Holtorf.

After concluding the session at Linneaus University, the fliers moved to IKEA headquarters in Almhult for lunch, a tour of the facility and a briefing on IKEA's design and innovation philosophies. While at IKEA, the fliers held their traditional General Assembly to discuss and approve future Congresses and other internal ASE affairs.



Photo: ASE

"Next Human Destinations" astronaut panel at Linneaus University in Växjö.

After returning from IKEA, fliers and companions had a brief rest before enjoying a brief outdoor stroll to the official Closing Ceremony of the Congress. Prior to inviting the attendees to a farewell banquet to celebrate the week's many successes, Congress host Christer Fuglesang recounted the week's events and thanked the attendees for coming to Sweden. He also thanked the many sponsors who supported the Congress activities and student outreach in Stockholm, Linköping and Växjö.

ASE president Soichi Noguchi invited the ASE regional presidents to the stage for a special presentation and conferment of Distinguished Member status on longtime ASE members Karol Bobko and Victor Savinykh. With the entire Executive Committee on stage, Noguchi presented the Perchatka to astronaut Mark Brown for delivering the best technical presentation at the Congress. In a final act before officially closing the Congress, the Executive Committee awarded Christer Fuglesang a Leonov Medallion for his efforts in organizing and hosting the XXVIII ASE Planetary Congress.



ASE extends its gratitude to Christer and Lisa Fuglesang and the many sponsors and supporters in Stockholm, Linköping and Småland for the warm hospitality and for hosting a very successful Congress in Sweden.

A special thank you to Anna Jonsson for her excellent work in support of the ASE, its members and the XXVIII Planetary Congress.



2015 Awards

ASE Planetary Award - Crystal Helmet

Sven Grahn (Sweden)

Leonov Medallion

Christer Fuglesang (Sweden)

ASE Distinguished Members

Karol Bobko (USA), Victor Savinykh (Russia)

Perchatka (Best Technical Presentation)

Mark Brown (USA)

**XXIX Planetary Congress
October 3-7, 2016
Vienna, Austria**

IN MEMORIAM

Анатолий Николаевич
Березовой



Anatoli Berezovoi

11.4.1942 - 20.9.2014
Soyuz T-5