

## Event Report: 44th International Conference on Environmental Systems (ICES 2014)

13-17 July 2014, Tucson, Arizona, USA

Submitted by: Ted Hall

### 1. SATC Attendance:

Total members: 38

Attending members: 2

Anton Andonov (I)	Abhishek Jain (R)
Payam Bahrami (I)	Mark Kerr (R)
Olga Bannova (R)	Shahzad Khaligh (R), Treasurer
Donald Barker (R)	François Lévy (R)
Annette Barnes (R)	Sungwoo Lim (I)
Christian Carpenter (R)	Renée Matossian (R)
✓ Marc Cohen (R)	David Nixon (R)
Silvano Colombano (R)	Kürşad Özdemir (I)
Ondřej Doule (I), Chair	Regina Peldszus (I)
Maria João Durão (I)	Georgi Petrov (R)
Michael Fox (R)	Emanuel Pimenta (R)
Shai Gerner (I)	Brian Pitchford (R)
John Gulliford (R)	Raúl Pólit Casillas (I)
Patrick Harkness (I)	Tomáš Rousek (I)
Sandra Häuplik-Meusburger (I)	Brent Sherwood (R)
✓ Scott Howe (R)	Jackelynne Silva-Martinez (R)
Ogbonnaya Iheukwumere (I)	Matthew Simon (R)
Barbara Imhof (I)	Frederick Slane (R)
Rohan Jaguste (I)	David Wong (I), Vice Chair

Attending former members: 1

✓ Ted Hall (R, former chair, 2010-2014)

SATC did not solicit attendance at this event, due to poor member participation in ICES 2013 and uncertainty regarding the future of ICES.

Because of the meager and divided participation at each of SATC's 2013 events – ICES, AIAA Space, and IAC – I had suggested that it focus its efforts on one event in 2014: the AIAA Space Forum. Of the 2013 SATC events, AIAA Space had the best participation. As an AIAA event, it has the advantage that AIAA will provide a room for a TC business meeting and fund a catered meal there.

Sections 4 and 5 of this report discuss the future of ICES and SATC's possible role in it.

## **2. Space Architecture Session:**

Although SATC did not solicit abstracts for a Space Architecture session in 2014, it attracted 6 abstracts anyway. Grant Anderson, the AIAA LSSTC representative on the ICES Steering Committee, requested that we maintain the session, and I agreed to continue to organize and chair it.

10 other current and former SATC members contributed a total of 14 reviews.

- 6 abstracts received
- 1 abstract withdrawn by the authors
- 1 abstract that never produced a paper
- 1 paper rejected by the reviewers

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- 3 papers accepted and presented

The Space Architecture session, ICES502-A, convened on Monday, July 14, 10:00-11:30 AM. The room was furnished with 54 chairs. Attendance peaked at 49.

Howe, A. Scott; Pólit-Casillas, Raúl. "Random Access Frames (RAF): Alternative to Rack and Standoff for Deep Space Habitat Outfitting" (ICES-2014-038).

Akin, David L.; McBryan, Katherine; Limparis, Nicholas; D'Amore, Nicholas; Carlsen, Christopher. "Habitat Design and Assessment at Varying Gravity Levels" (ICES-2014-264).

Sadler, Phil D.; Furfaro, Roberto; Patterson, R. Lane. "Prototype BLSS Lunar-Mars Habitat Design" (ICES-2014-313).

## **3. Other Papers by SATC Members:**

Three SATC members co-authored papers in two other sessions: Bioregenerative Life Support (ICES204-C) and Radiation Issues for Space Flight (ICES503-A):

Cohen, Marc M.; Matossian, Renée L.; Lévy, François; Flynn, Michael. "Water Walls Life Support Architecture System Overview" (ICES-2014-025).

Miller, Jack; Cohen, Marc M. "Radiation Shielding Tests of Regenerative and Recyclable Materials" (ICES-2014-026).

## **4. Past and Future of the ICES:**

ICES is an annual conference founded by a consortium of technical committees from various professional societies. Wikipedia provides a concise history:

[http://en.wikipedia.org/wiki/International\\_Conference\\_on\\_Environmental\\_Systems](http://en.wikipedia.org/wiki/International_Conference_on_Environmental_Systems)

Formerly, the ICES was sponsored by one of the societies, which provided financial backing and logistical support for the event and published the papers. Due to irreconcilable differences between the ICES Steering Committee and the former

sponsors, this is the first year that ICES has operated independently. Texas Tech University provided support, thanks to the efforts of Andrew Jackson, a longtime ICES Steering Committee member and past ICES Conference Chair.

The 45th ICES will meet in Bellevue, Washington, USA, 12-16 July 2015.

The 46th ICES is expected to return to Europe in July 2016, but a site has not yet been selected. Sponsorship must also be arranged.

## **5. SATC's role in the ICES:**

The Space Architecture Technical Committee, or its precursors, have been organizing sessions at the ICES since 1998 – first as a working group in the Design Engineering TC, then as a subcommittee of the DETC, then as the full SATC since 2008. However, it was not one of the original founding committees going back to 1971.

The ICES Steering Committee formerly included one representative from one committee of each of the participating societies:

- AIAA Life Sciences and Systems Technical Committee (LSSTC)
- AIChE Environmental Systems Committee
- ASME Crew Systems Technical Committee
- SAE Environmental Systems Committee
- ICES International Committee

Consequently, the Space Architecture sessions have always been categorized under LSSTC, even after SATC became a full-fledged TC in its own right. Marc Cohen has long advocated for SATC representation on the ICES Steering Committee. The response has been that the ICES Charter would need to be revised to allow more than one representative from one society (AIAA).

When SAE withdrew all support for the ICES after 2009, the role of its Environmental Systems Committee was reconstituted as the AIAA Space Environmental Systems Program Committee. (Unlike AIAA *technical* committees, AIAA *program* committee membership is not limited to AIAA members.) Thus, the ICES Steering Committee now includes two AIAA representatives.

Since the tradition of one representative per society has been broken, the SATC may wish to continue advocating for its own representative as well, or some other form of program acknowledgement distinct from the LSSTC.

Advantages of ICES over other conferences for SATC participation include:

- It's all about environmental systems.
- It's more international.
- It's less dominated by the military-industrial complex.
- Its papers are fully peer reviewed (not merely the extended abstracts).