



Space Visions Symposium # 1

Call For Papers

The purpose of this series of symposia is to bring together people interested in what may be possible in space in the next ten to fifty years. The expectation is that high-level mission objectives will evolve from the philosophical development of the ideas contained within the missions addressed here. Those objectives will include operational concepts and the activities and capabilities that need to be developed for each mission type.

The theme of the first symposium is:

“Large Scale Space Occupancy - What will it take?”

Accordingly, we are seeking papers that look forward up to fifty years into the future with the intent of determining the true magnitude of the problems facing such activity.

The proposition is that anything built for long term human occupancy in space has to be designed and built to accommodate humans in an environment that is as natural as possible. The net effect of this is to dictate that ships and bases or outposts be designed for normal human occupancy and that as a corollary of this the systems built will be very large.

This begs the question about where such ships and outposts etc. may be built and the obvious answer is; **"On orbit"**.

Papers of a technical nature are invited in the following areas:

- On-orbit Infrastructure
- Exploration Missions
- Material recovery and Usage Missions
- Settlement Missions

Further definition of these missions is given at the end of this Call for Papers.

Papers are invited from people working in any discipline that may affect any of these missions.

We can get there from here – if we try!

Symposium Date and Venue
2nd and 3rd May 2024
at
The Auditorium in the Florida Solar Energy Center
1679 Clearlake Road, Cocoa FL.
Important Dates

- Call for Papers 30 September 2023
- Abstracts due to CCTS 7 December 2023
- Notification of Acceptance 12 January 2024
- Final Paper due to CCTS 21 March 2024

Notes for Authors

Authors should adhere to the following standards as closely as possible.

Papers

- Abstracts should be 150 to 250 words in length.
- Abstracts and Papers should be transmitted electronically to the CCTS website as an E-mail attachment.
- Abstracts and Papers should be in PDF format.
- Papers should include the Author(s) name(s), Affiliation and an Abstract.
- Graphics and graphs etc. should be in-line with the text.
- Papers should ideally be in single column format with adequate line spacing.
- Fonts should be sans serif, preferably Arial or Calibri.
- Heading text should be BOLD and in the same font as the body but should be larger than the body text.
- Body text should be no smaller than 10pt. in Arial and 14pt in Calibri.

Presentations

All presentations should be on a thumb drive for use in the FSEC Audio-Visual system. Such Thumb Drives should be available on the day of the presentation.

Releases

Authors are reminded that they are responsible for obtaining any clearances for publication from their respective organizations.

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Registration

Authors will be automatically registered for the Symposium.

Author guests must register.

Registration will open on 1 October 2023 and will be via the CCTS web site and this is the preferred method of registration.

Limited Registration may be available at the door depending on availability of seats.

There is currently **NO CHARGE** to attend this symposium.

Hotels

We are still investigating local hotels and hope to have recommendations soon.
They will be posted on the website.

Contact Data

CCTS Web site: www.cctsonline.org

Canaveral Council of Technical societies,

Cape Royal Office Building, Suite 401

1980 North Atlantic Avenue,

Cocoa Beach, FL 32931

U.S.A.

Phone; (321) 328-5958

Mission Definitions

Classifying space missions is difficult but it is necessary to try and draw points of commonality and difference between them. This helps define the overall problem from the point of view of support and the expectation of results from any given mission.

The four mission categories chosen are On-orbit Infrastructure, Exploration, Material Recovery and Usage and Settlement. These missions are defined below:

On-Orbit Infrastructure

On-orbit Infrastructure is that infrastructure necessary in space to accomplish the construction, outfitting and provision of supplies including all the food stuffs, dry goods, propellants, gases, fluids, and spare parts etc. for the duration of the mission plus a contingency allowance for unforeseen problems.

This On-orbit Infrastructure and the missions will of necessity be supported by a major Surface Logistics Effort on Earth.

Exploration

An exploration mission is essentially a data gathering exercise. Such missions start from a fixed place and usually end up back where they started. The primary product of such missions are data and possibly some samples. As such, these missions are usually comprised of a small crew and several people dedicated to collecting data and samples.

The issue is “where do we explore?” Mars and the Moon are obvious candidates but people also talk of mining the Asteroid Belt. However, the Asteroid Belt is two to three times the distance of Mars and will present a different and unique set of challenges.

The only support these missions may expect would be limited to supply dumps at known locations and indeed, such pre-positioning of supplies may become common on all exploration and Material Recovery and Usage missions.

Material Recovery and Usage

Material Recovery missions are just that. They are missions to recover materials from wherever they go. These must be relatively small crews and they will probably have several people to actually collect the material. Assuming that they will be looking at raw material recovery they must have some means of assaying their finds. There must also be storage for recovered materials. So, these ships are going to be large and must be capable of surviving in space for several years. They will need to support the crew for that time. When they return, either to Mars, Lunar or Earth orbit the

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cargo will have to be off-loaded and put up for sale based on the assay data for the cargo.

Settlement

Settlement missions are by far the largest and the most complicated. They will typically transport a large number of people from the surface of the Earth to a new destination, either Mars or the Moon, perhaps even to settlement structures that exist in Low Earth Orbit, Low Lunar Orbit or Low Mars Orbit.

Settlement is perceived as a “one-way” trip. Studies have been performed about the implications of transporting people in large numbers from Earth to anywhere in space. In this case the settlers must take with them everything they are likely to need. There may be a need for considerable support from Earth in the early years until the colony can become self-sustaining.