

Proposal for Forming an IAA Study Group

SG 3.13

Title of Study: Assessment of the Technological Feasibility and Challenges of the Space Elevator Concept

Proposer(s): Peter Swan, Ph.D. & David Raitt, Ph.D.

Primary IAA Commission Preference: Commission III

Members of Study Team

Chairs: Peter Swan & David Raitt

Secretary: Cathy Swan

Members: (accepted) Robert Penny, Lubos Perek, Tetsuo Yasaka, Radu Rugescu, Richard J. Tremayne-Smith, Ted Semon, Bryan Laubscher, Michael Laine, Ben Shelef
(Invited) Wiley Larson
(invited) other members of Commission III

Short Description of Scope of Study

Overall Goal:

- (1) Assessment of the Technologies**
 - Ribbon Material
 - Dynamics of Ribbon
 - Base Station Infrastructure
 - Ribbon Rider Motor / Wheels
 - Power to Ribbon Rider (Lasers vs. sun)
 - Ribbon Rider Platform
- (2) Systems Design Issues**
 - Space Debris
 - Deployment
 - Environmental Elements
- (3) Description of Space Elevator Implementation – Dynamics and Control of Long Ribbon, Build-up of 1-meter wide Ribbon, Power Approach, Payload Carrying Capacity, Anchor Design**

Intermediate Goals: (1) Conduct sessions at IAC's (South Africa, Naples) with purpose of presenting technological aspects of the Space Elevator. [direct questions from study group]
(2) Conduct a min-symposium co-sponsored by the Academy and the International Space Elevator Consortium presenting the results of this study. [could be session at IAF at Naples]

Methodology: The initial step is to sponsor sessions inside the IAA D.4.4 Symposium (Symposium on the Far Future: Space Elevators & Tethers). A parallel step is to create a study group, establish goals, objectives and timelines for a Space Elevator cosmic study. Conduct a min-symposium to present the results of the study. The last step would be to produce a report for the Academy that discussed the feasibility of a Space Elevator and identify the potential benefits to humanity.

Time Line: 1st Meeting Oct 10 in Prague – to establish study group and schedule [of course much will be started thru email and telephone calls starting when the study is approved.]

March 11 in Paris – to discuss progress, identify action items, finalize South Africa and Naples papers to support study group

3rd Meeting: Oct 11 in South Africa – to discuss presentation during IAF and finalize some portions of the report.

4th Meeting: Mar 12 in Paris – summarize conclusions and recommendations in the report and draft final aspects of Academy product.

5th Meeting: Oct 12 in Naples – produce the Academy report for commission review and have a session focused on the report in co-sponsorship of the International Space Elevator Consortium

6th Meeting: Paris 2013– produce the Academy report- for peer review

Final Product :

Academy Publication entitled: Assessment of the Technological Feasibility and Challenges of the Space Elevator Concept

Target Community and Expected Effects: Those organizations wishing to have inexpensive access to space: Mars/Moon program, Life in space believers, geosynchronous satellite owners (communications, solar power satellites, etc.), planetary defense organizations, commercial satellite builders, space tourism companies, and governments.

Support Needed: Minimal at the present time: Title a session in Prague, South Africa and Naples: Vision of the Far Future – Space Elevators and Space Tethers – the last two structured to support study group.

Potential Sponsors: space agencies, Mars/Moon programs, planetary defense organizations, commercial space organizations, future human habitats and world governments.

To be returned to the IAA Secretary General Paris by fax: 33 1 47 23 82 16 or by email: sgeneral@iaaemail.org

Date: 22 March 2010

Signature: signed Peter Swan

No Signature required if document authenticated.

Initial Phase

***Application received: Created study group – March 2010
Chairing Session in Prague on Space Elevators and Space Tethers
focused toward the cosmic step.***

Commission Approved:

SAC Approved:

Web Site Section opened:

Members Appointed:

Final Phase

Peer Review by Commission Completed:

Recommended by the Commission:

Final Report Received:

SAC Approved:

BOT Accepted:

Publisher Selected:

Study Published: