Assessment of the Technological Feasibility and Challenges of the Space Elevator Concept [IAA 3-13]
Status of Study

7 Sept 2012

1 – Summary: All principle chapters have submitted drafts for a total of over 400 pages. The current status is draft-draft with feedback from the editors to the chapter captains with instructions to smooth out text and ensure consistency of approach. The final version, ready for peer review, should be available by 15 April 2013.

2 – Next Meeting: ***4 October 2012, IAC Naples*** The meeting is scheduled to follow the D4.3 session [space elevators] at the Naples IAC, probably in Hall 2. The minutes will summarize the progress, but this note is to explain the status prior to the start of the meeting for activities surrounding the Cosmic Study # 3-13.

3 – Schedule: The study seems to be slightly behind schedule; however, effort is being focused to complete the study and address the items that are behind. Here is the current schedule agreed upon by the authors:

25 August	Workshop in Seattle [1/2 day] [completed & very helpful]
20 Aug	Chapters completed in draft-draft form
5 Sept	Comments returned to chapter captains
15 Sept	Papers due for IAF session [being submitted now]
4 October	Paper presentations in Naples [Hall 2 1300 hrs]
4 October	Final Cosmic Study mtg in Naples [Hall 2 1300 hrs]
20 Dec	Final Chapters in draft to editors
1 Feb 2013	Final Cosmic Study to Commission III review
15 Mar	Comments incorporated in Final Cosmic Study version
15 Apr	to Peer Review Panel
1 July	comments incorporated into final publishable version
15 July	to SAC and BoT
15 Aug	to publishers

4 – Table of Contents: see below TOC, which has not changed since March.

5 – Terminology: The editors are in the process of developing a series of terms that will be standardize across the book for consistency. This will ensure the various chapters are speaking the same language: [list to be expanded as we proceed]

> ***Tether*** [not ribbon] the material stretching from Apex Anchor to base station.
> ***Climber*** [not rider] to represent the physical "spacecraft" that attaches to the tether. This would consist of subsystem such as structure, electrical [solar arrays, cables, batteries, microprocessors, etc], motor, wheels, payload bay [structure, power & comm's for customer], communications and then customer payload.
> ***20 Metric Ton Tether Climber*** [6 MT structure, 14 MT payload]
> ***30 MYuri Tether*** [with 5 Taper Ratio – could fall back to 25/7]

Principle Power is Solar [Start at daylight at 30+ km altitude]
Concept of Operations [see chart prior to outline]
Maritime Node is baseline [with floating platforms for operations, on the High Seas, on the equator]
Tether Climber Power is Solar and starts at 30+ km [Laser power is an option, but not baseline as there are so many complications – at the present time there are four options on how to start at daylight at 30+ km to include High Stage One as preferred approach after prototype demonstration]
Multiple Space Elevators [baseline is at least two operational space elevators to never be confined to the Earth's gravity well again.]
Apex Anchor [not counterweight]
US dollars [$ will be standard].
MKS [units will be standard.]

6 – Standard Format: As we are approaching the due dates for the chapters, the editorial team has provided a "Word" format document and an example chapter, Dr. Knapman's chapter five.

7 – Chapter Content: As the draft – draft chapters are into the editors and the chapter teams are trying to incorporate feedback at this time, there is hope that the final drafts of the chapters will be accomplished late this fall. Three items are being emphasized by the editors;

TRL level [technology readiness levels by NASA]
Consequence vs. Likelihood matrix [see word page with sample]
Findings and Conclusions

When these items are completed for each chapter, the conclusions and recommendation chapters can be written. The real emphasis will be on the technological feasibility of the space elevator as a system and then its individual systems of systems.

8 – Next Meeting [Naples, 4 Oct, Hall 2, 1300 hrs]: We have made great progress in Seattle [1/2 day, scheduled in parallel with the ISEC Space Elevator Conference]. The editors invite all authors to attend the meeting for each chapter presentation and observe the other chapters to ensure consistency across the Cosmic Study. I will send out the final meeting information as we get confirmed locations and times.

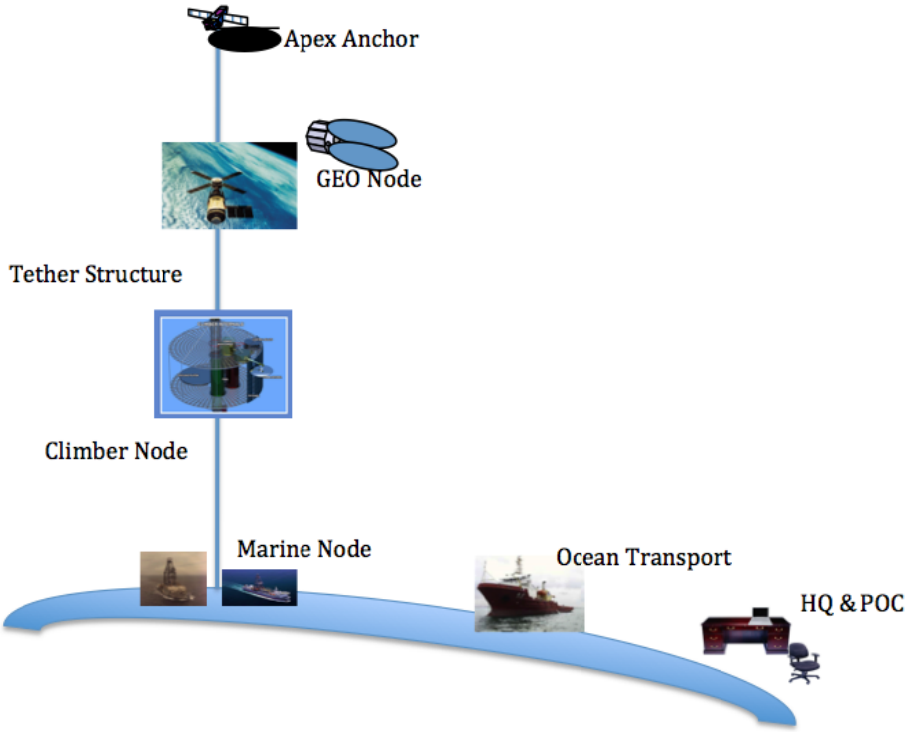
9 – Paper Submission: I was very pleased with the abstracts submitted for the Naples IAC. During the October Naples IAC, the cosmic study should be in its final stages of editor review with a meeting to resolve any conflicts between concepts or words. The session inside the IAC should be exciting and enjoyable.

10 – Summary: I want to thank all of you who have worked so hard on these items inside the chapters. David, Skip, Pete, and Cathy [the editor team] are really excited about the challenge of "helping" to fit your chapter into this monumental work. It is clear that when our work is finished, the space elevator community will have spoken – We

CAN do this in a reasonable time at a reasonable cost and acceptable risk! However, the impact of our work could be no less than "improving the human condition."

Peter Swan, Ph. D.
Cosmic Study lead Editor

Operations	***Location***
Enterprise Operations Center	HQ&POC
Transportation Operations Center	HQ&POC
Marine Node Operations Center	Marine Node
Climber Launch Operations Center	Marine Node for first 30 km,
Tether Climber Operations Center	HQ for Solar Operations
Payload [satellite] Operations Center	HQ&POC
Tether Operations Center	HQ&POC
GEO Node Operations Center	HQ&POC
TT&C Operations Center	HQ&POC



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A Cosmic Study for the International Academy of Astronautics

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