



# Nano-satellite Constellation Mission Idea Contest

- Nanosat Constellation Mission Design Contest
- Sponsored by Axelspace, etc.

# What

Are the ground rules

- Eligibility
  - Any individual, group or company with suitable space systems expertise and an enthusiasm for nanosats
- Requirements
  - Exploitation of Nanosats e.g. Individual free-flying satellites typically  $\leq 15$  kg
  - Exploitation of a constellation = a synergistic collection of 2 or more satellites providing a common service or multi-point data.
  - Mission capable of  $< \sim 2$  yr development time with total lifecycle cost  $< \sim \$6$ M (excluding launch)
- Assumptions
  - Single, Secondary launch to Earth orbit to achieve initial operational capability

# Why

a contest

- Encourage innovative exploitation of nanosats in constellations to provide useful and sustainable capabilities, services or data

# Why

you should participate

- Finalists will be invited to present in Japan at the 2nd Nanosat symposium
- Award 1<sup>st</sup> prize: 500,000 JPY , 2<sup>nd</sup> prize: 300,000, 3<sup>rd</sup> prize: 200,000
- Best papers published in a peer-reviewed journal: e.g. *Acta Astronautica* or *Journal of the British Interplanetary Society* (TBR)
- High visibility for your ideas, potential for future collaboration and support

# When

## contest timeline

- June 2010: Announcement of Contest Details
- July-September 2010: Regional seminars to introduce the competition details in each region:
- December 20, 2010: Submission Deadline
  - Evaluation by reviewers: Dec.20 – Jan.20
- January 2011: Announcement of Finalists
  - Each team of finalists shall prepare formal paper describing their proposed idea (detailed guidelines to be provided)
  - One representative from each team of finalists will be invited to Japan (expenses paid) to participate in the final presentation stage.
- March 1, 2011: Submit final papers for review
- March 14, 2011: Final Presentations and selection of winners in Tokyo

# How to apply

- Submit extended abstract not to exceed 5 pages (in English) no later than 20 Dec describing:
  - Need your mission idea addresses
  - Prioritized list of Mission objectives
  - Concept of operations (description of key mission elements and their interfaces)
  - 3-5 Key Performance Parameters (e.g. Resolution, data rate, coverage)
  - Space segment description ( conceptual design, e.g. Mass, volume, power, link budget, orbit)
  - Implementation plan (estimated cost and schedule, infrastructure requirements)
  - Detailed instruction for submissions to be found on website
- Work with your regional coordinators for assistance
- If selected as finalist, prepare and submit final paper and presentation for 2nd Nanosat Symposium in Tokyo March 2011

# Who

will review

- Prof. Shinichi Nakasuka, University of Tokyo
- Prof. Sir Martin Sweeting, Executive Chairman, SSTL, and Director, Surrey Space Centre
- Dr. Rainer Sandau, Deutsches Zentrum für Luft und Raumfahrt e.V. (IAA, formerly DLR)
- Prof. Herman Steyn, Stellenbosch University
- Dr. Masaya Yamamoto, Weathernews Inc.
- Dr. Jerry Sellers, Teaching Science & Technology, Inc.
- Prof. Hiroshi Kawahara, Cyber University

# How

we will review

- Original, sustainable Nanosat mission idea
  - Novel mission concept not yet realized or proposed, or a new implementation of an existing capability or service
  - This is not intended to be a single mission but rather an on-going application providing a continuous useful capability
  - Impact on society
- Mission Feasibility
  - Technical
  - Programmatic (cost estimate, development schedule, infrastructure requirements)
  - Operational (Description of ground segment and communications architecture, e.g. planned use of existing infrastructure)



Good Luck!