

The "Profile" Mission

What it is: a proposed plan for a mission of 12 or 24 coordinated small satellites (17-25 kg) for obtaining **cross-sections** (profiles) of the Earth's magnetosphere.

How it differs: The satellites are in groups of 6 strung out along an **elongated orbit** of 20 or 25 Earth radii, the groups **overtaking** each other now and then. This allows changing formations, varying separations and intercalibration.

Instruments: magnetometer, ion/electron spectrometer 30-30,000 eV, s/c spin also gives 2 components of the bulk velocity \mathbf{v} (and hence of the electric field).

So what: (1) Different formations allow up to **30 different** "experiments" to be performed at different stages of the mission, bearing on questions like reconnection, ring current variation, propagation of shocks from the solar wind, propagation of substorms, 2-point correlations in the magnetotail, etc. Many diverse efforts can benefit!

(2) Its' **cheap**--no propulsion, low perigee, proven technology. Only one boost per dozen satellites--the spinning mother ship does the rest.

When first planned? 1996, then developed further.

Did NASA consider it as a multiprobe mission? No.

Why? (Not discussed here!)

Where can one read more? Relevant articles, including two from *J. Astronaut Sci.* (and a supplementary note) are linked from

<http://www.phy6.org/Education/Future.htm>

(Comments to the author's e-mail are welcome.)