

INITIAL PROPOSAL

to

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

for an

ATS TECHNOLOGICAL EXPERIMENT

Submitted for

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INITIAL TECHNICAL PROPOSAL FOR A "STORM PATROL"
METEOROLOGICAL EXPERIMENT ON AN ATS SPACECRAFT

by

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I. OBJECT

The object of this experiment is to continuously monitor the weather motions over a large fraction of the earth's surface. Even though near earth weather satellites have provided an impressive array of visual and infrared observations of the earth's weather on a nearly operational basis, the synchronous satellite affords another opportunity to gain a better understanding of the global weather circulation, the key to better weather prediction.

II. DISCUSSION

The view from a near earth satellite is so fleeting that it is not possible to obtain any real measure of the weather motions. For example, in the TIROS series of satellites, the life history of a model storm had to be derived from a number of different storms, at different times, at different places, and in different stages of development.

In the tropics the weather motions have a shorter time scale than the motions at higher latitudes. The tropics, between $+ 30^{\circ}$ latitude covers half the earth's area which is 80% ocean. Here the surface observations are very sparse and polar orbiting satellites have the greatest gaps in their data.

The tropical region is the "boiler" of the giant atmospheric heat engine. Convective activity plays an all important role in the heat transfer process, yet its short time scale prevents its being observed adequately by near earth satellites.

We propose a simplified version of the "Aeros" satellite which has many of its benefits, yet takes advantage of the simple spin stabilized system already proved in "Syncom". The experiment can also be adapted to a gravity gradient stabilized spacecraft, but loses some of its simplicity in the process.

III. IMPLEMENTATION

This experiment utilizes a spin stabilized spacecraft as designated by F-2 and F-3 of the ATS series. Stated simply the experiment will yield a high resolution "television" picture of the earth's disc.

