

In the event that the orbital configuration of the Orbital Workshop, Apollo Telescope Mount and associated equipment are in some way inoperative or not usable, we have planned for a second Orbital Workshop and Apollo Telescope Mount to be available as back-up for flights in the calendar year 1969 time period. Our funding request for FY 68 includes the increment of obligational authority required to support this back-up hardware.

EXPERIMENTS

During the course of these missions, we will perform various scientific, technological, engineering, medical and applications experiments.

The scientific experiments will include areas of astronomy, space physics and bioscience for flight in low earth orbit.

The technological and engineering experiments will deal primarily with evaluation of advanced technology associated with future planned space stations or planetary missions.

The medical experiments include apparatus to test and record human response during long duration flight to various stresses. Among such stresses are physical exercise, variable gravity, and the performance of complex other human tasks.

The applications experiments are planned to develop techniques for measuring the effectiveness of man's participation in orbital meteorology. A large portion of the meteorology experiments is contained in a package of experiments known as Applications A (APP-A) (Figure 11).

METEOROLOGY PAYLOAD PACKAGE (APP-A)

OBJECTIVES

- FLIGHT TEST EXPERIMENTAL METEOROLOGICAL INSTRUMENTATION.
- USE MAN'S ABILITY TO DIRECT SENSORS TO METEOROLOGICAL EVENTS OF MOMENT.
- COMBINE NUMEROUS SENSORS FOR SIMULTANEOUS OBSERVATION AND CORRELATION OF DATA.
- CONFIRM SPECTRAL SIGNATURES OF EARTH RESOURCES.
- FLIGHT TEST SOME INSTRUMENTS WHICH MAY CONTRIBUTE TO THE DETECTION OF AIR POLLUTION.
- IMPROVE KNOWLEDGE OF ATMOSPHERIC COMPOSITION AND STRUCTURE.
- TAKE ADVANTAGE OF INCREASED PAYLOAD CAPACITY AND VOLUME PROVIDED BY AAP MISSIONS.

PRINCIPAL EXPERIMENTS

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| ● DAY-NIGHT CAMERA SYSTEM | ● VISIBLE RADIATION POLARIZATION MEASUREMENTS |
| ● DIELECTRIC TAPE CAMERA SYSTEM | ● STELLAR REFRACTION DENSITY MEASUREMENTS |
| ● MILLIMETER WAVE PROPAGATION | ● UHF SPHERICS DETECTION |
| ● MULTI-SPECTRAL PHOTOGRAPHY | ● IR INTERFEROMETER SPECTROMETER |
| ● IR TEMPERATURE SOUNDING | ● 15 MICRON GRATING SPECTROMETER |
| ● O ₂ & H ₂ O MICROWAVE RADIOMETER | ● MULTI-CHANNEL RADIOMETER |
| ● IR FILTER WEDGE SPECTROMETER | ● SELECTIVE CHOPPER RADIOMETER |

EXPECTED FLIGHT READINESS DATE: MID 1969

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FIGURE 11

APPLICATIONS A (AAP-A)

The Applications A experiments are planned to develop techniques for, and to measure the effectiveness of man's participation in orbital meteorology. Meteorological investigations will afford the opportunity to evaluate a number of instruments, establish their flight worthiness, and to examine man's capability to control or modify the experiments.

This experiments package affords an excellent opportunity to investigate space concepts for orbital flight before they are applied to long-life, unmanned meteorological satellites for continuous worldwide weather forecasting. In this respect,