

1. The single purpose of the Orbital Astronomy Support Facility(ies) is to capitalize on the established manned space flight capability in advancing the objectives of a comprehensive Astronomy/Astrophysics experiment program in Earth orbit.

2. NASA will provide the contractor with manned Astronomy/Astrophysics experiment program planning documentation, and, to the extent available, with equipments/instruments and instrument packages identified as being required by these objectives and experiments. This material will guide and aid the contractor in establishing a suitable reference frame within which the Orbital Astronomy Support Facility(ies) concepts and configurations can be derived.

3. To the extent that it is practical and desirable, the facility concepts will utilize the spacecraft currently envisioned for the Apollo Applications Program (AAP) and the Manned Orbital Research Laboratory for housing the equipments/instruments. If for best overall results the OASF should be housed in a spacecraft different from those currently envisioned, the facility housing will be such that it will be capable of operating with the AAP or MORL during the time periods specified in paragraph IV-6.

4. The facility concepts, particularly those for the earlier time periods, should allow for modular addition of equipment and accessories, thus further enhancing the facility's flexibility. This equipment may consist of items that become available after initial operation of the facility or items that may become necessary due to the refinements of experiments based on feedback from the initial phases of manned experimentation. Manned assembly, calibration, or modification with subsequent unmanned periods of operation, manned and unmanned data return, crew rotation, and resupply requirements, shall be considered where appropriate in this study.

5. The facility will capitalize on man's appropriate participation as a research and operator in the experiments, observations, assembly, maintenance, calibration, and other activities.

6. For initial guidance purposes the spacecraft to be assumed to be available for the Orbital Astronomy Support Facility, or for operation with it are:

a. For 1969-70: Basic Apollo and AAP spacecraft including LEM laboratory; Saturn S-IVB spent stage.

b. For 1972-74: Extended-life Apollo CSM with laboratory module in adapter; Saturn spent stages.

c. For 1976-78: Manned Orbital Research Laboratory with Saturn spent stages.

7. The facility concepts may include units that require several manned launches and/or unmanned launches. The facility concepts will be compatible with the Saturn IB and Saturn V launch vehicles.

8. Orbital characteristics to be considered should include those of greatest interest to the scientific community and are limited only by the Saturn IB and V capabilities launched from Cape Kennedy and man's presence during all or portions of the experimentation/observations.

9. Emergency escape is to be provided at all times for all personnel.

10. Results of current research projects, data of existing equipment/instruments and those under development will be used wherever possible. Possible use of existing ground-based instrumentation and equipment that could be modified for space operations should be considered. In particular, for the 1969-70 time period, the optical telescope available is expected to be an adapted and modified 38-inch diameter GEP type telescope. For 1972-74, the optical telescope is expected to be a minimum of 40-inches in diameter with technology moving towards 60-inches. For 1976-78, the minimum diameter is expected to be 60-inches with technology moving towards the 120-inches diameter telescope.

11. Use shall be made of ground tracking, instrumentation, and data acquisition facilities currently planned or being developed.

12. The National Academy of Sciences' 1965 Woods Hole summer study shall be considered a major source of astronomical ideas and "directions for the future" in space astronomy research.

13. The contractor will consider and build upon the results of previous studies, particularly the analysis of the scientific goals of Astronomy/Astrophysics, and the assessment of equipment requirements and their adaptation to space-borne experimentation. These studies include, but are not limited, to the Douglas MORL Study (NAS1-3612), the Boeing Manned Orbital Telescope Study (NAS1-3968), the IBM study of the ORL Experiment Program (NASw-1084