twelve sounding rockets in the first year and about forty in the second. Two small satellites are being developed and will probably be launched from the United States (the first in 1967) in cooperation with NASA. Medium stabilized satellites and a large astronomical satellite are also part of the initial plans. Long-range plans include more probes and satellites, as well as proposals for a lunar mission and a fly-by mission to a planet or comet. ESRO will neither design nor develop sounding rockets and launching vehicles but will purchase them as needed.

The costs of the Organization will be met by contributions from the member states, with percentages prorated according to national income. The members have set the maximum amounts which ESRO may spend at $78 million for the first three years, $122 million for the second three years, and $305 million for the first eight years together.

Noctilucent clouds

According to an agreement announced on June 5, the National Aeronautics and Space Administration and the Swedish Space Committee will extend for another year cooperative sounding-rocket studies of the upper atmosphere and of the faintly luminous noctilucent clouds which are usually visible only during summer twilight in the auroral regions.

The program began in 1961 and involves the firing of rockets from Kronogard in Sweden to measure wind and temperature in the upper atmosphere at altitudes ranging from thirty to sixty miles and to collect particles of the noctilucent clouds found at such altitudes. In past experiments, extreme temperatures (−143°C) and wind velocities (450 mph) have been recorded, and particles measuring between 0.05 and 0.5 microns in diameter have been collected. The presence of iron and nickel in the particles has been determined, and the possibility that they may be of extraterrestrial origin is under study.

This year's experimental program includes four payloads to collect particles and four rocket-grenade payloads to measure winds and temperatures. Two of each type will be launched about 15 minutes apart in the presence of noctilucent clouds, and the other two pairs when no such clouds are present.

Soviet-American exchanges

On May 20, the National Academy of Sciences and the Academy of Sciences of the USSR jointly announced the signing of a new two-year agreement for the exchange of visits by United States and Soviet scientists. An annex to the general agreement on cultural exchanges between the two countries, the new agreement on scientific exchanges is the third since 1959 between the US and Soviet academies. It was signed by their presidents, Frederick Seitz and M. V. Keldysh.

The new agreement provides greater flexibility in arrangements by eliminating the previous two-step procedure of gaining approval first for the field in which an exchange is proposed and then for the scientist who will take part. Another change permits visits to be announced whenever desired, instead of on a fixed date for the entire year to come.

Each academy will be able to send 55 scientists on individual visits for a total of 180 months during 1964 and 1965, the same number and duration as before. There is specific provision for the exchange of: twenty prominent scientists from each country (half of them members of the respective academies) for a period up to one month each to deliver lectures in the other country; ten scientists to make one-month visits to familiarize themselves with some aspects of scientific work in the other country; 25 scientists to conduct research in the other country for periods from three to ten months.

In its announcement the NAS stated that "exchanges under the agreement supplement other such scientific exchanges taking place between the US and the Soviet Union, arranged by individual scientists and universities of each nation. There is no intention that the inter-Academy agreements be considered exclusive instruments for the arrangement of such exchanges."