Soyuz 18 flight to overlap ASTP

Alexei Leonov, the commander of the Soyuz craft which will take part in next week's ASTP mission, revealed on June 26 that the crew of Soyuz 18, Lt Col Piotr Klimuk and engineer Vitali Sevastianov, will remain aboard the Salyut 4 space station throughout the duration of the international flight. Tass had earlier declined to give any indication of the proposed length of the flight, and it had been widely surmised that the mission would go to 40-50 days and then be terminated in order to give maximum publicity to the American/Russian flight. However, the Soyuz 18 mission now appears likely to last about 60 days, with a return to Earth set for a few days after the end of the joint mission (which is scheduled to begin on July 15 and to end, for the Russians, on July 21). Salyut 4 will be flying in nearly the same orbital inclination, but 100 miles higher than the ASTP craft. It will be the first time that three manned spacecraft have been in flight together around the Earth. Leonov said that the Soyuz 18 crew would be communicating with their colleagues aboard the Russian ASTP craft, though the two missions are not in any way related to one another. However, it is possible that a rendezvous may be attempted after the ASTP task has been completed.

Soyuz 18 had on June 23 beaten the 29 days 13hr 20min Soviet duration record set by the first cosmonauts to visit the space station earlier this year. If a 60-day mission is in prospect, Soyuz 18 may turn out to be the second longest manned space flight, the record being currently

Soyuz I8/Salyut 4 crew Klimuk, left, and Sevastianov aboard the space station. Note the data sheets secured to the left-hand wall, and the pedals of the roof-mounted exercise machine behind Sevastianov

FLIGHT International, lOluly I97S

held by the 84-day Skylab 4 mission which began in Novber 1973.
Possibly as a prelude to ASTP, unusual publicity been accorded to Soyuz 18. Almost nightly televis sessions have shown the crew at work and leisure both are clearly in excellent health. Great emphasis been placed on regular use of the bicycle-type exer machine in an effort to retain muscle tone followi Sevastianov's unpleasant experiences when re-adaptin gravity after the 18-day Soyuz 9 mission in 1970.
Dr G. Narimanov, Deputy Director of the Institute Space Research in Moscow, has emphasised the import

of the medical, biological, technical and scientific expements being carried out by the crew. Tests have also b
made of a new attitude-stabilisation system capable more precise long-term pointing. This is necessary not o to take advantage of the inherent accuracies of many the experiments, but also to cut down the wasteful use fuel by control equipment of coarse resolution.

VENUS 9 AND 10 MISSIONS

The two Soviet spacecraft Venus 9 and 10, launched restively on June 8 and June 14, are now both well on th
way towards Earth's sister planet. Boris Petrov, who ch the Soviet Council for International Co-operation, no that they will land on Venus, though he did not indica whether a soft- or hard-landing was contemplated. The probes each weigh 10,2001b and were launched three-stage SL-13 Proton boosters, the first time that vehicle has been used for Venus missions, though it first employed in July 1965. The craft were placed on th trajectories from parking orbits around the Earth w the assistance of kick stages.
The two previous probes, Venus 7 and 8 (which s

soft-landing capsules to the surface in 1970 and 1972 spectively), weighed about 2,6001b apiece. The lunar rov vehicles Lunas 16 and 20 and the soil-return Lukhods 1 and 2, previously the heaviest Soviet soft-land
all weighed about 4,2001b each. The new Venus c therefore represent a big jump in capability. It is n known whether the payloads comprise both orbiters landers, or whether (as in the case of the four Mars pro launched in 1973) they each represent only one-half o mission.

Russia is known to be keen on exploring the surf of Venus and carrying out television surveys. The incre in capability may stem from new equipment to sense direct the craft—if it is a lander—towards the elevat part of the surface in order to keep the temperature do and also from the increased structural weight neces to protect the payload from the inhospitable atmosph

At ground level the atmosphere has a temperature mated at 590°C and a pressure of about 100 atmosph
winds of about 240 m.p.h. are inferred from t measurements made by Nasa's fly-by Mariner 10 last y

A landing on an elevated part of the surface would csiderably reduce the temperatures and pressures. Both probes will reach the vicinity of Venus in miOctober.
SPACELAB SIMULATION FLIGHT COMPLETED

An international crew of five has completed a six-d Spacelab simulation aboard Galileo II, Nasa's Convair airborne laboratory based at Ames Research Centre California. The crew worked in the aircraft by day a lived in special quarters packed alongside when not fly The mission manager, Louis Haughney of Ames, w joined by two Europeans and two Americans for the se of five night flights, which began on June 2 and conclud on June 7. Experiment operators included Nicholas We a graduate student at Britain's University of Sussex.

The six-day test, part of a study programme called Aborne Science/Spacelab Experiments System Simula
(ASSESS), was designed primarily as an examination the problems- which will inevitably arise when proje scientists are not at hand to tend their equipment. instruments aboard Spacelab will generally be mana by operators and not by the project scientists themse