Japan to Halley

Second comet probe launched

Tokyo

AFTER several days of delay because of bad weather, Japan's main Halley's comet probe (Planet A) finally had a perfect launch from the Uchinoura Space Centre, Kagoshima, on the morning of Monday 19 August.

The satellite was carried aloft by a 28-m tall Mu 3SII solid-fuel rocket at 8.33 a.m. Some eight minutes later, each of the rocket's three stages had separated according to plan and the final "kick" stage had injected the satellite directly into its orbit. Test transmissions were picked up shortly afterwards by National Aeronautics and Space Administration (NASA) tracking stations in California and in Japan, indicating that the launch had been faultless.

The 135 kg satellite, given the name *Suisei* (Comet), will continue into orbit around the Sun. By March next year it will have completed three-quarters of its first revolution and rendezvous with Halley's comet soon after perihelion. Also on hand will be the Japanese satellite *Sakigake* (MST5), launched in January this year and at present orbiting the Sun, waiting for March.

In March, *Suisei* will pass within a million kilometres of Halley's comet and take a series of vacuum ultraviolet (Lyman alpha line) images of the comet's coma as it passes perihelion. This stage of the comet's journey is of particular interest, for water and other volatile materials leave the comet nucleus and are photodissociated through a complex series of intermediate radicals. The UV images should make it possible to identify exactly what stages are involved.

Suisei is rather small compared with the satellites from other nations that will be observing Halley, and everything possible has been done to save weight. The satellite has not been fully stabilized by a three-dimensional attitude control system but will rotate slowly at 5 revolutions per minute. Each time ultraviolet pictures are taken, the satellite will be briefly slowed down by a momentum wheel. A sharp picture will then be ensured by rotating the image on a charge-coupled device to compensate exactly for remaining spin.

Also on board is a pair of sensors for electrons and positive ions intended to observe the interaction of the comet's ionosphere with the solar wind — and particularly to look for turbulence produced by solar flares. Measurements will be coordinated with those from *Sakigake* which will be sitting further "downwind". Although it was launched largely to test the new control and communication subsystems now in use on *Suisei*, it also carried instruments to measure plasma waves and the interplanetary magnetic field.

The launch of *Suisei* is by far the biggest

adventure so far for the Institute of Space and Astronautical Science, the independent academic organization responsible for all Japan's scientific satellites. Preparations have been under way for some

years: a new rocket had to be developed with extra strap-on boosters, a new launch tower built at Uchinoura Space Centre and a new 64-m diameter dish antenna built in Nagano prefecture to pick up the signals. If *Suisei* proves to be a success, a lunar satellite may come next on the list of Japan's ventures into space.

Alun Anderson

University committee review begins

THE promised scrutiny of the British University Grants Committee (UGC) is to be carried out by a committee under the chairmanship of Lord Croham (formerly Sir Douglas Allen), chairman of the British National Oil Corporation; the deputy chairman of the committee is Lord Butterworth, retiring vice-chancellor of the University of Warwick.

The development is important because it is almost certain to lead to a change in the constitution of UGC, founded in 1919 as a buffer between the British government and the publicly supported universities. The need for such a review was most recently advocated by the Jarrett committee on the efficiency of British universities, which reported earlier this year.

The composition of the review commit-

tee is not what British academics would have chosen. Lord Butterworth, made a life peer at the beginning of the year, has been a successful vice-chancellor. The committee also includes Dr Paul Matthews, vice-chancellor of the University of Bath until two years ago, and Mr John Smith, secretary of Imperial College, London. Dr Peter Clarke, chairman of the Scottish Vocational Education Council, was previously principal of Robert Gordon's Institute of Technology at Aberdeen.

The other members of the committee are primarily industrialists, including Sir Alex Alexander, chairman of J. Lyons and Co., Mrs Mark Baker, a director of Thames TV Ltd, Sir Austin Bide, chairman of Glaxo Ltd and Mr Ian Beesley, head of the Prime Minister's Efficiency Unit. □

Soviet science

In the steps of the Ukraine

THE Ukrainian Academy of Sciences, the largest and oldest in the Soviet Union except for the All-Union academy itself, seems rapidly to be becoming a model for the other thirteen republics. During the past few months, the Soviet media have given considerable acclaim to the Ukrainian system of "production centres", semi-pilot factories operating under the academy's aegis. And last month *Pravda* lauded another major Ukrainian innovation — its network of local science centres.

Science centres have been a major feature of Soviet science since the establishment of the Siberian branch of the Soviet Academy of Sciences in 1957. Except for the Ukraine, however, science centres have largely been confined to the Russian republic where, since there is no separate Russian academy, they have come under the All-Union academy.

In spite of official encouragement of science centres as a means of bridging the Soviet Union's endemic gap between research and implementation, the centres have often been criticized for failing to fulfil their allotted tasks. A campaign in the mid-1970s began with the Far Eastern Science Centre and worked its way up to the Siberian branch of the academy before the tide turned.

The Ukrainian network began formally with the establishment, in 1971, of five centres, for the Donetsk, Western, North-Eastern, Dnieper and Southern regions of the Ukraine. By 1980, more than 25 per

cent of the whole scientific work-force of the academy was employed in regional centres, spanning marine biology and cryomedicine, high-molecular chemistry and radiophysics. Major developments in the chemical and instrument-building industries have been credited to the centres.

How far the Ukrainian experience could be repeated in other republics, however, is not clear. The Ukrainian SSR is one of the most developed republics of the Union, with large reserves of ores and fossil fuels, as well as much of the best agricultural land. The science centres clearly have had the support of the First Secretary of CPU, V.V. Shcherbytskyy, who some years ago publicly urged that Ukrainian scientists should concentrate first and foremost on research needed for the Ukrainian economy. Moreover, the Ukrainian republic is large enough, and has an economy diverse enough, to provide employment for a wide range of scientific talent.

The main problem of the Ukrainian centres as of science in all the non-Russian republics is that of attracting top-flight people. Job prospects in the Soviet Union depend not so much on what, but where, one studies. The brightest students from all republics gravitate towards the top higher education institutions in Moscow and then, almost inevitably, become absorbed into the Moscow-Leningrad-Novosibirsk research network.

Vera Rich