

The NSF is buying two more C-130's—another \$18 million—but they are not scheduled to be delivered until 1977. They will be equipped with JATO units, but Guthridge points out the Navy investigated each of the previous mishaps (including a 1971 crash when a malfunctioning JATO blew off a propeller, leaving the aircraft stuck until it is now in snow “up to its tail”) and found nothing that would justify imposing a permanent ban on the devices.

Meanwhile, the C-130's remain vital to work at the bottom of the world. “Those planes give the United States a flexibility that no other nation has in the Antarctic,” says Guthridge. For both coastal and inland heavy-lift operations, he says, their high wings, high engines (to clear snow drifts) and huge tail doors (a bulldozer can simply be driven in and out) make them ideal. “If you ever had to design a plane from scratch,” he says of the Antarctic mission, “it would probably look just about like a C-130.” □

Multination look at tri-planet hydrogen

A proposed data exchange involving three countries may lead to significant conclusions involving three planets, as well as the sun. The idea has been put forward by Jacques L. Bertaux of the Aeronomy Service of the French National Center for Scientific Research, designer of the ultraviolet photometers that are studying the atmosphere of Venus from aboard the two Soviet Venera spacecraft now orbiting that world.

Hydrogen in the Venusian atmosphere, now being measured by the photometers, is a scientific puzzlement. The U.S. Mariner 5 spacecraft measured it in 1967, but when Mariner 10 repeated the feat in 1974, it reported barely half as much hydrogen as did the previous observation. Bertaux's idea is, in essence, to make use of “outside consultation” with two other planets: Mars and the earth.

About two weeks before Venera 9's Oct. 20 arrival in orbit around Venus, Bertaux came to Princeton University, control center for the U.S. Copernicus astronomy satellite. Copernicus carries a high-resolution spectrometer covering the same wavelengths as the Venera photometer. Perhaps, he suggested, Copernicus could be aimed to observe Mars and the earth on some of the same days that Venera was doing so around its cloudy planet. Combining results from all three planets might reveal a common influence. As it turned out, Copernicus was just about to do that very thing.

Joel S. Levine and David S. McDougal of the National Aeronautics and Space Administration's Langley Research Center in Virginia, together with Edwin S. Barker of Princeton and Don E. Anderson

of the Naval Research Laboratory, are now preparing to analyze the results of that experiment. Although Copernicus has been largely a stars-only observer, it was turned toward Mars and the earth for four orbits every fifth day during November. A primary goal, says Levine, is to see whether the timing of hydrogen variations in the atmospheres of the two planets can be matched with the 27-day cycle of the rotation of the sun, believed to be a possible cause of hydrogen changes due to its effect on upper-atmospheric heating. If the Venera data, supplied to Bertaux by the Soviet Union, can be swapped for the Copernicus data, both sides will be able to examine hydrogen processes from three, not just one or two, places in the solar system. (In addition, the earth-orbiting Atmosphere Explorer C and D satellites were observing solar emissions of hydrogen-exciting photons directly during the same time period.)

There are also, of course, scientific reasons for studying hydrogen on the three planets individually. Besides questions of water vapor and other compounds, Venus still poses the riddle of the widely disparate Mariner measurements. On earth, so-called “odd-hydrogen” compounds (H, OH, HO₂) play a significant role in the natural destruction of ozone.

Mars, with the two elaborate Viking probes due to arrive there next summer, is particularly exciting. Mariner 9 showed that atomic hydrogen spectra from the Martian atmosphere vary by as much as 20 percent from one day to the next. This could be because of solar variations, which the multispacecraft study should reveal, or, says Levine, because the hydrogen content itself is really that fickle. Hydrogen, after all, is only a trace element on Mars, he points out. If no more hydrogen were added to the Martian atmosphere, he says, it would be completely gone within as little as two to five hours, due to thermal escape.

The U.S.-French-Soviet data exchange is expected to be finalized this week. It may be as much as two months before the Venera data are available to Bertaux, but when the time comes, the swap will be a clear case of planetary synergy. □

Soviet space briefs: Bio-Vostok, Soyuz 20

An unmanned Soviet Vostok spacecraft was launched Nov. 25, carrying at least 11 biological experiments, four of them provided by the National Aeronautics and Space Administration at Soviet invitation (SN: 10/18/75, p. 248). The U.S. experiments include such life forms as plant cells and fish embryos. Each experiment has both a near-weightlessness version and a control counterpart to be conducted in a one-gravity centrifuge. Placed in an orbit initially ranging from 141 to 251 miles above Earth, the satellite is expected

to remain aloft for about 22 days. □

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Another unmanned craft, Soyuz 20, docked with the Salyut 4 space station, suggesting that Soviet space officials are investigating the possibility of automatically resupplying the station to enable longer manned missions. Launched Nov. 17, Soyuz 20 was the first unmanned craft to rendezvous and couple with a Salyut. There were no announcements of attempts at transferring consumables or other materials from spacecraft to space station, though Soviet officials have discussed the concept of automated orbital “tankers” in the past. □

President for AAAS . . .

Former Connecticut Congressman Emilio Q. Daddario, director of the Congressional Office of Technology Assessment (OTA), has been elected president of the American Association for the Advancement of Science for 1977. Following usual AAAS procedure, Daddario will take office next year as “president-elect,” and in 1978, as chairman of the board.

Daddario was a member of the House for 12 years, serving as chairman of the Subcommittee on Science, Research and Development and as chairman of the Special Subcommittee on Patents and Scientific Inventions. He has directed OTA since its establishment in 1973.

Two new members of the AAAS board of directors have also been elected for four year terms beginning in January: Rep. Mike McCormack (D-Wash.), chairman of the House Subcommittee on Energy (he is one of only two scientists in Congress), and physicist Chen Ning Yang, the Albert Einstein Professor of Physics at State University of New York, Stony Brook (1957 Nobel Prize for physics). □

. . . and Soviet Academy

Anatoly Alexandrov, one of the few members of the Soviet Academy of Sciences who is also on the Communist Party's Central Committee, was elected president of the academy last week. The 75-year-old physicist replaces Mstislav Keldysh, who resigned abruptly last spring, after 14 years in the post.

Tensions between the Soviet Academy and the party have apparently been mounting for some time, culminating in the postponement of the celebrations to mark the academy's 250th anniversary last year. Some observers see Alexandrov's election as a sign that party control of the once autonomous academy has now been completed. The main speaker at the academy meeting on the day of the election was chief party ideologist Mikhail Suslov, who told the scientists their devotion should be “to the cause of the party and the people.” □