

cosmogram-10 /j.oberg/ 1984 July 7
t 2 box 350, dickinson TX 77539

CHRONOLOGY: Crew day 150; Soyuz T-11 day 95; Progress-22 day 40; Salyut-7 day 806.

CLARK'S LAW TRIUMPHS AGAIN. Kudos due to non-subscriber Phil Clark whose article on Soviet manned launch windows in SPACEFLIGHT accurately anticipated manned launchings in February and April. Since the last manned window was skipped, the next is a near-surebet for Soyuz T-12, on or about July 25. Clearly they need a Soyuz swap mission. I also suggest that they may do a partial crew swap, perhaps the commander only. Permanent orbital occupation would be aided by personnel overlap among exchanged crews.

NEW MODULE - WHEN? Perhaps after the next Soyuz swap we may finally get another new "add-on module" spacecraft. I finally got copies of the "Soviet Union" cover and inside cutaway of Kosmos-1443 (showing some intriguing differences!), so write me if you need them.

NIX NEWS ON NEW BOOSTERS. Still hearing conflicting reports on whether hardware now on pads is flight vehicles or fit-check test equipment. Some time ago I suggested the first orbital launch would be in 65 degrees inclination. Any comments?

EVA BLITZ REVEALS PATTERNS. The five EVAs in April and May revealed several interesting patterns. All EVAs began on the Salyut rev crossing the equator about 21-26 degrees east. Some opened the hatch within a few minutes, some (late?) took up to half an hour. The preferred time to begin the EVA is at sunrise Moscow Time, giving the maximum daylight subsequent to first radio contact on each orbit.

SOLAR PANEL PATTERN. Another interesting pattern emerged for the solar panel augmentation EVAs last November and this May. Both occurred during brief periods of minimum darkness. Normally, 35-40 minutes

of each orbit is spent in Earth's shadow, but when the line of nodes (intersection of orbit plane with equatorial plane) is perpendicular to Earth-Sun line, and at the same time Earth's axial tilt toward/away from Sun is near maximum, the Salyut can actually be in sunlight for nearly its entire orbit. The perpendicularity must occur at solstice (and in summer, ascending node must be at sunset; in winter, ascending node must be at sunrise). If it occurs several weeks from solstice, there is still a brief (several days) darkness minimum but it is maybe ten to fifteen minutes long per orbit. Anyhow, sure enough, the Nov 1&3 and the May 18 EVAs both fell in these periods. Why? Obviously so the panel being worked on could be turned off, while the two remaining panels could carry the whole station power load because of the lesser need to charge overnight batteries (figure it yourself: with only twenty minutes or less of darkness, two panels permit the same continuous power load as three panels do with forty minutes of darkness). If this pattern of EVA timing is not accidental, then the next (and last) panel augmentation EVA should occur about July 15. I so predict, as long as there still is a Progress attached to help repressurize the airlock.

SHUTTLE SMEAR. Some of you may have received a polemic from me regarding the British magazine story that STS-8 was connected with a "spy mission" with the doomed Korean airliner KAL-007 last Aug 31 (UT). Attached is a calmer but more damning refutation of the story. I am interested in how far and fast the original "malignant fabrication" traveled and whether or not any refutations/denials ever caught up. Especially overseas non-subscribers, please let me know what you saw regarding this affair. Yes, of course, the attached letter may be reprinted/quoted/referenced in any

publication (please send copies).

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HELSINKI: Kosmos-1443 model to be at Soviet space exh. U.S. News & World Report had cosmonaut training photo in Apr 25 issue, showing Kiz/Sol at water pool. Background was Salyut mockup for EVA repair! Showed that Progress footer frame faced Salyut at 1:00 PM position (view Salyut from aft with center solar panel at 12 noon). Same view, OMS engines at 10:00 and 4:00. Ladder was strapped verticle to side, at about 2:00 position.

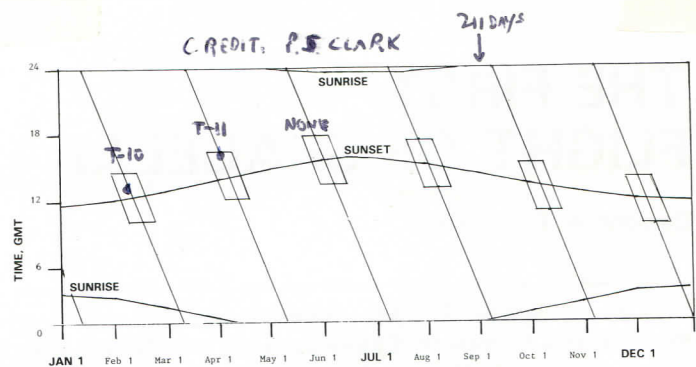
NEW BRAND FLIGHT. Astronaut Vance Brand is bad luck for Soviet premiers. He has been assigned a new mission, Spacelab EOM, for late in 1985. Watch out, Chernenko! Better yet, the mission is a prime candidate for a symbolic Shuttle/Salyut rendezvous, if politics and diplomacy call for it. This is not nearly as flakey an idea as it may seem at first.

MORE GUEST COSMONAUTS?? At the Indian cosmonaut press conference, academician Kotelnikov was asked about plans for future international manned flights. He responded that no new guest cosmonaut missions were planned. So much for the speculation on invitations to Nicaragua, Afghanistan, Greece, Austria, Ethiopia, Syria, Palestine, etc. I was told by a Finnish journalist that the Soviets had invited Finland but had demanded payments; Helsinki said no thank you.

APRIL 5 ANOMALY NON-SCOOP. I have been informed by Phil Clark that the duration/altitude/range data on the Soyuz launch failure in 1975 had in fact been published much earlier than my citation. Sorry!
ZOND-4 IN CAPTIVITY. I keep hearing rumors that the Zond-4 command module landed in Sinkiang province, was recovered by the Chinese, and is now on exhibit in the Red Army museum in Beijing. How can we check up on this, if true or not?

SAPFIR SPEAKS. Several recent references in Soviet articles talk about a voice communications system called "sapfir" (particularly when comm link is through a small tracking ship such as the Belyayev). This system involves very slow enunciation of one syllable per second or so, which is difficult to understand without special training. Has anyone heard anything about this, or why it should be necessary? Is this the voice encrypted system, perhaps?

SPEAKING OF SPEAKING from space, another interesting note from the 211-day mission report. It is claimed by Blagov that during the Soyuz-T-7 reentry, continuous communications were maintained for the first time by means of a relay through a Raduga communications satellite. A TDRSSky!! No references to subsequent usage, but earlier there had been general press discussion of the use of geosync-eq relay satellites for manned communications. Blagov also in some detail confirmed the logic of the "five-day landing window" (light at landing point, light at retro-fire).



Launch and landing times to Salyut 7 in 1984. The times of sunrise and sunset (converted to GMT) are shown for the mean Soyuz landing site. The sloping lines represent the times of launching and landing for rendezvous missions during the year. In recent years, landings have come on the same line as launches. A landing "window" begins when the launch/landing line crosses the sunset line, and lasts for about five days.