

ground into the soil, and the snow cover is less than five cm. The ice crust is 12-18 mm thick and in places up to 25-30. It has also remained in Moscow and Ryazan Oblasts and in the north of the Volga region but here it is under the snow cover which is more than 10 cm deep. This crust is less dangerous to the plantings.

The soil in the majority of regions of the middle belt has frozen to a depth of 20-50 cm. In the Transcaucasian republics it has gotten much colder since the middle 10-day period.

In the majority of farming regions of Siberia the weather has been warmer than usual for this time of year. The average 10-day air temperature was two to seven degrees and in places 10 degrees higher than the past multi-year average. Only in Tyumen and Omsk Oblasts was it two to five degrees lower. Winter crops were under a snow cover 20 to 40 cm deep.

In Kazakhstan at the beginning of the year, warmer weather than usual prevailed and then it became much colder. The low air temperature in the northern half of the republic dropped to 30-40 degrees below zero.

In the republics of Central Asia during the second half of the 10-day period it also became much colder. There was precipitation almost everywhere. The air temperature dropped to 11-20 degrees below zero, in the northern part of the region—to 21-24 degrees, and in the extreme north—to three to nine degrees.

The wintering of the grain crops and grasses is proceeding quite favorably everywhere.

Scientific

'Molniya-3' Communications Satellite Launched

LD2301161190 Moscow TASS in English 1605 GMT
23 Jan 90

[Text] Moscow January 23 TASS—Using a Molniya booster rocket, the Soviet Union today launched a communications satellite, Molniya-3, to ensure the operation of the remote telephone and telegraph radio communications, transmit Soviet Central Television programmes to Orbita network receives, and promote international cooperation.

The satellite has been placed in the orbit with the following parameters:

- Apogee in the northern hemisphere—38,892 kilometers,
- Perigee in the southern hemisphere—642 km,
- Period of revolution—11 hours 41 minutes,
- Inclination of the orbit—63 degrees.

Communications sessions via Molniya-3 will be conducted in keeping with the flight programme.

Kazakh Radiation Monitoring Stations Set Up

LD2301140290 Moscow Domestic Service in Russian
1200 GMT 23 Jan 90

[Text] Radiation monitoring stations have been set up in the rayons adjacent to Semipalatinsk nuclear testing ground. Their assembly was completed today by specialists of the Institute of Nuclear Physics of the Kazakh Soviet Socialist Republic Academy of Sciences. Up-to-the-minute data will reach the institute once every 48 hours from all the stations; the information will be processed and summarized, after which it will be available to all state and public organizations.

Rumors of Cracks in Chernobyl AES Denied

904E0047A Moscow TRUD in Russian
18 Jan 90 p 2

[Interview with Yu. Tsoglin, nuclear power plant safety section director of Nuclear Research Institute of USSR Academy of Sciences and science chief of the "Shater" Monitoring and Diagnostics System of Unit 4 of Chernobyl Nuclear Power Plant, by D. Kiyanskiy in Kiev: "Are There Cracks in the 'Sarcophagus'?—Some Answers to Alarming Questions Related to Present Condition of the Chernobyl Nuclear Power Plant"; date not given—first two paragraphs are TRUD introduction]

[Text] "Again we have trouble in Unit 4, they say." "I heard something has come crashing down inside the 'shelter'." "One comrade in a responsible position stated that filters were destroyed in the 'sarcophagus' by strong gas exhaust"...

Rumors are circulating around the housing areas, one more incredible than the other. What is actually happening in this unit of the Chernobyl Nuclear Power Plant? This is discussed by Yu. Tsoglin, nuclear power plant safety section director of the Nuclear Research Institute of the USSR Academy of Sciences and science chief of the "Shater" Monitoring and Diagnostics System of Unit 4 of the Chernobyl Nuclear Power Plant.

[Tsoglin] There has been nothing of the kind. However, I do not condemn those people who trustingly accept such "facts." Their alarm is entirely understandable—the accident at Chernobyl has brought too much grief. There is one way to handle it—regularly provide the population with precise and objective information. We need complete glasnost here.

[Kiyanskiy] But perhaps you simply have not yet received the news of some emergency occurrence?

[Tsoglin] If something were to happen, we in Kiev would know about it in less than a minute. I have the same "picture" on the display screen in my office at the Nuclear Research Institute as that which appears on the operator's screen at the Unit 4 terminal. A data link between the "Shater" system model located in the institute and the analogous system in Unit 4 enables any deviation to become immediately apparent to us. All the

information obtained from 150 sensors located inside the "sarcophagus" is analyzed by computer. The institute has a computer with the same program, and operators are on duty at the "site" 24 hours a day.

[Kiyanskiy] How frequently do they change the aerosol filters in the ventilation system of the "shelter"?

[Tsoglin] When a sensor indicates that the filter has accumulated a certain quantity of radioactive aerosols, it is extracted, put in a special container, and sent to a solid-waste depository. However, the gaseous discharge activity of the "shelter" facility is not great. Samples gathered daily show that the level of these emissions is far below the tolerance level. It is another matter if the danger of construction elements collapsing arises. Experts servicing the destroyed unit regularly inspect all premises accessible to radiation and certify them.

[Kiyanskiy] Why are instances of internal collapse so dangerous? Could the destruction of some construction elements threaten the integrity of the "sarcophagus" itself?

[Tsoglin] No, of course not. The problem is elsewhere—a portion of a collapsing wall or, let us say, an overhead beam that crashes down raises radioactive dust which—if there is a lot of it—can escape outside through the tiniest natural cracks or thin sections in the "shelter."

This finely dispersed dust contains plutonium, strontium, cesium, and other radionuclides, and that is why the defective and questionable construction inside the facility has been reinforced. It was done by a comprehensive field team of the Nuclear Energy Institute Imeni I.V. Kurchatov.

Dozens of holes were bored in order to study the well of the reactor, the condition and location of fuel. On the basis of all-encompassing analysis of the extensive information, experts on the comprehensive field team and the team's science chief, academician S.T. Belyayev, concluded it was impossible for a chain reaction to occur. They guarantee that the facility is safe from a nuclear point of view.

[Kiyanskiy] The "pyramid" erected over the destroyed unit cannot compete longevity-wise with the famous

burial vaults of the pharaohs. What does the future show for the "shelter" and what it contains?

[Tsoglin] The important thing now is to strengthen the two-ton inverted roof of the reactor plate, about 14 meters in diameter, which is in unstable condition. Design and construction organizations of the USSR Ministry of Industrial Nuclear Energy are working on this. With regard to the fate of the "sarcophagus," scientists have proposed that it be transformed into a long-term edifice, made ecologically safe. Designs are already being drawn up and the strictest deadlines have been established. The technical-economic substantiation is scheduled for completion this year, and the working design is to be completed in 1992. The future "Shelter-2" facility, according to its creators' concept, must be sufficiently solid and hermetically sealed so that any collapse of the destroyed unit is not reflected in the condition of its walls or roof and does not cause any change in the radiation environment of the site. An alternative proposal is also under development—the so-called "green grass" variant, which entails a complete dismantling of the facility and removal of nuclear fuel waste.

[Kiyanskiy] Which of the two variants will require less effort and money?

[Tsoglin] An answer to this question must be based on the technical-economic substantiation many organizations are busy developing. The Ukrainian SSR [Soviet Socialist Republic] Academy of Sciences has taken a great volume of work upon itself, in particular the institutes of nuclear research, geochemistry and physics of minerals, geophysics, botany, and cybernetics. The USSR State Committee for Construction has concluded that today's "shelter" will be able to fulfill its functions for at least another 30 years. And so we do have some time. I think we will succeed in completing the selected variant prior to the turn of the century.

[Kiyanskiy] It is said the "sarcophagus" is becoming more radioactive with time, and will therefore present an ever increasing danger to the environment.

[Tsoglin] That is not so. There are no nuclear reactions taking place in the "shelter" which would cause it to become radioactive. Moreover, according to the laws of radioactive decay, the level of contamination—and consequently the intensity of emissions—decreases with time.