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Title: PRIZE-WINNING WORK ON CURRENT-LAYER DYNAMICS AND SOLAR ACTIVITY

Primary source: Moskovskiy komsomol-ets, March 6, 1983, No. 55 (13625), p. 4, cols. 8-9

Abstract: The article is an interview with B. Somov, the head of the solar plasma study group under the USSR Academy of Sciences' Astronomical Council and a senior science associate of the academy's Physics Institute imeni Lebedev (FIAN). Somov is identified as a member of a group of physicists who were awarded the 1982 USSR State Prize for a cycle of works entitled "Dynamics of Current Layers and Solar Activity". Commenting on its nature and significance, Somov says the work provides a theoretical substantiation of the chain of processes occurring in solar plasma, from the formation of sunspots and active regions to the accumulation and liberation of energy in the form of flares in the sun's atmosphere. These phenomena were studied by various methods, including analytical and modeling methods. Experiments conducted with equipment developed at the USSR Academy of Sciences' Institute of Space Research, the Siberian Institute of Earth Magnetism, and FIAN reportedly have confirmed the theory formulated by Somov's group.

Somov goes on to mention possible areas of application of the findings of the work. They include space flight and controlled thermonuclear fusion. The work is said to provide a good theoretical basis for developing improved methods for forecasting

solar flares and, consequently, radiation danger to spacecraft and their crews, for example. Academician Boris Kadomtsev is said to believe that both solar flares and the phenomenon of destructive instability of plasma in tokamak reactors may sometimes have the same underlying mechanism. Further study of the operation of this mechanism may permit the development of new elementary-particle accelerator systems of very high power.

Title: TECHNOLOGY FOR STUDIES OF EARTH FROM SPACE DESCRIBED

Primary source: Ekonomicheskaya gazeta, March 1983, No. 12, p. 2, cols. 1-5

Abstract: The article is a survey of the scope of studies of the Earth from space for economic purposes. The survey was compiled by the department on problems of the atmosphere and the oceans of the USSR State Committee for Science and Technology. Estimates reportedly indicate that an economic effect of 500 to 600 million rubles is yielded annually from the use of data obtained from space in the interests of various branches of the economy.

A section of the article is devoted to the technology of studies of the Earth from space. It identifies two 'subsystems' for this -- photographic and operational. The photographic subsystem is said to be intended for the study of processes that take place slowly, and of stable formations on the Earth's surface. Special photographic equipment with high resolving power and geometric imaging precision is carried on various types of spacecraft. Photographic studies of the Earth from space are also carried out by means of satellite photography.

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