

letters

Future of plasma space physics

The June issue describes much-needed funding increases in NASA's FY84 budget, particularly for physics and astronomy programs (page 43). These welcome increases will alleviate problems in a number of science programs.

Unfortunately, the budget category of physics and astronomy does not convey the entire story about NASA's support of physics research. The purpose of this letter is to alert your readers to a situation that threatens research in space plasma physics. The increasing precision of measurements, numerical modeling, and theory applied to space plasma problems have made the study of solar-system plasmas an important motivation and experimental arena for basic plasma-physics research. Moreover, the solar system is the primary laboratory in which certain astrophysical processes of great generality can be studied *in situ*. For these reasons, we believe our letter should be of interest to physicists and astrophysicists.

Because of managerial changes within NASA in the last year, the FY84 budget for physics and astronomy no longer covers space plasma physics, which had been an important element of the former NASA Division of Solar-Terrestrial Research. This NASA Division was abolished for nonscientific reasons. Its principal program elements, including solar physics, heliosphere physics, and space plasma physics (including the Earth's magnetosphere and ionosphere) were split between the Earth Science and Applications Division and the Astrophysics Division. The Physics and Astronomy budget line item applies totally to the Astrophysics Division at this time. Thus NASA's once carefully coordinated research in solar-terrestrial physics has virtually disappeared as an explicit organizational element. Space plasma physics, placed in an applications division, is no longer considered (for the first time since the beginnings of the US space program) a part of the physics and astronomy budget line for research support, including new missions and research and analysis.

NASA has not yet fully addressed the problems that the current organiza-

tional structure creates for space plasma physics and solar-terrestrial research, despite the fact that several National Academy studies conducted by the Space Science Board, the Geophysics Research Board, and the Polar Research Board have all emphasized the fundamental importance and unity of the subject. Further, a Committee of the Space Science Board made specific recommendations for a cost-effective coordinated program for the 1980s. These recommendations are being essentially ignored in NASA planning because solar-terrestrial physics has disappeared as an organizational entity. The Space Science Board expressed its concern to NASA about this problem in February 1983.

We view with considerable alarm the future of solar and space physics research in the nation. We believe that this area of research is diminishing ever more rapidly at the same time that NASA's overall budget, including physics and astronomy, is increasing. This trend will have adverse repercussions on other areas of science because, as stated in the Space Science Board report, *Space Plasma Physics*, this research area is "an important branch of science, concerned with problems of true intellectual significance that may be studied effectively in space and whose importance extends to laboratory physics as well as large-scale astrophysics." Will the US no longer be a participant in, to say nothing of being a leader in, solar-system plasma-physics research? Is this the direction that the nation wishes its space agency to take?

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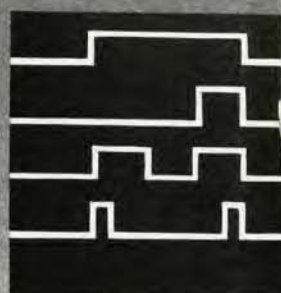
(plus 18 other physicists associated
with universities or industry)

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