

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Notice (52-)

National Environmental Policy Act; Finding of No Significant Impact

AGENCY: National Aeronautics and Space Administration.

ACTION: Notice of Finding of No Significant Impact.

SUMMARY: Astrophysical research has been a primary objective of NASA since the beginning of space exploration. The unique perspective of space, free from the disturbing effects of the atmosphere, enables the study of the Sun, the solar system, and the rest of the universe to be observed in ways which are not possible from the surface of the earth. Gamma ray astronomy is one such field of study. These very high energy photons of light are absorbed so strongly by the Earth's atmosphere that they are virtually undetectable from the ground.

The Gamma Ray Observatory (GRO) has been proposed to meet NASA's needs for gamma ray research during the late 1980's. This program involves placing into low-earth orbit a 12-ton spacecraft which includes in its complement of scientific instruments sensitive devices for the detection of gamma rays. Both imaging and spectroscopic information will be received about some of the most exotic and strange objects in the universe, including quasars, black holes, neutron stars, and the erratically variable sources known as "bursters."

rec'd 5/4/88 (2005)
from Dr. Thompson
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The GRO will be a free-flying observatory orbiting the Earth in a circular orbit at an altitude between 250 and 500 km. It will be placed into orbit by the Space Transportation System (Shuttle) and is to be returned to Earth by controlled (destructive) reentry using its own propulsion system. The total mission lifetime is expected to be between 2 and 3 years.

Possible alternatives to this program do not exist. The Earth's atmosphere effectively stops gamma radiation from penetrating to the ground, and experiments flown on high-altitude balloons are limited in both duration and payload capacity. The GRO Program is the only known way to pursue gamma ray astronomy as a mature science, so as to round out the study of the universe in all regions of the electromagnetic spectrum. The information which will be obtained from the program is critical to our understanding of the energy sources in black holes and other very energetic astronomical sources.

No significant environmental impact will result from any phase of development or operations during the GRO Mission. Any manufacturing pollutants will be contained with insignificant effect on the atmosphere. The effects of any fuel leaks during launch and orbiting of the Space Shuttle are well understood and would be controlled with standard procedures to reduce environmental impacts to minor levels.

Controlled reentry of the spacecraft will ensure that impact will occur in a non-inhabited area. Gases or agents which might cause pollution will be dissipated over a large track in the atmosphere and any surviving metals will be common metals such as copper aluminum whose corrosion will cause no significant effect.

The conclusions of all analyses are that environmental impacts are either vanishingly small or highly improbable.

DATE: Comments must be received in writing on or before (Insert date 30 days after publication in the FEDERAL REGISTER).

ADDRESS: National Aeronautics and Space Administration, Code EZ-7, Washington, DC 20546.

FOR FURTHER INFORMATION CONTACT: Mr. B. R. McCullar, (202) 755-3676.

SUPPLEMENTARY INFORMATION: The environmental assessment of this proposal project was completed by the National Aeronautics and Space Administration in January 1982.

CONCLUSION: The development and operation of the GRO will not result in any environmental impacts of a long-term or deleterious nature. No Environmental Impact Statement is required for the subject activity.

Original Signed by

JUN 7 1982

Robert F. Allmatt
Acting Associate Administrator
for External Relations

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CONCUR	CODE	▶ (SEE ATTACHED FOR OTHER CONCURRENCES)			LB-4	NSM-12
	INITIALS			3	JUN 4 1982	
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