II.

BACKGROUND ATTACHMENT

# DICUSSION AND ANALYSIS OF THE ISSUE AND OPTIONS ON COMMERCIALIZING THE CIVIL WEATHER SATELLITES

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I. Discussion of Issue

There are major policy, market, and potential cost saving differences between the land remote sensing system and the civil weather satellite programs which raise significant policy concerns over commercialization of the civil weather satellites:

o While important national security concerns may arise as the land system technology advances, commercialization of the civil weather satellite programs will raise important national security concerns over military dependence (as a backup to military satellite systems) on a commercial system observing weather data critical to strategic, tactical, and intelligence missions, and over the ability of the Federal Government to control this important source of information in a national emergency. Concerns of the Department of Defense with respect to national security issues are discussed in a classified attachment to the CCCT Decision Memorandum.

o No negative international reaction to the commercialization of the land program has yet been voiced. Several countries have already expressed concern over commercialization of the U.S. civil weather satellites. It is not known how widespread this concern will be. What position other nations will take on the free exchange of weather data from satellites and other sources with U.S. Government users is also unknown. Upward of 100 nations now receive weather data from U.S. satellites. If these nations were charged significant amounts for U.S. weather satellite data, they might either terminate the present international free flow of other weather observations that are essential to U.S. civil and military weather programs, or charge the U.S. Government for global data which it now receives without cost.

o Revenues from non-Federal users to the operator of the land system in FY 1983 are projected to be between 40 to 50 percent of the total receipts. This figure is expected by some sources to rise to 60 to 70 percent in the late 1980s. In contrast, the Federal Government would likely provide 95 percent or more of the revenues from the sale of weather satellite data, at least during the balance of this decade.

o Though land satellite data is used by a number of Federal agencies, such use does not approximate the complex cooperative arrangements for the sharing of meteorological data that now exists among a number of Federal users. Cooperative programs include the above-described backup use of civil polar orbiting systems by the military, the multi-agency sharing of hydrological data from the GOES system and the planned shared processing of weather satellite data between NOAA, the Air Force and the Navy.

In further considering this issue, the Working Group has considered the complex interactions and linkages of weather services within the United States itself, and between the United States and over 100 nations of the world. A significant change in any part of this intergovernmental network could adversely affect the overall effectiveness of civil and military weather services in the United States. Changes in the availability of satellite data or services could be catastrophic to the public, government agencies, and industry. Examples of

these complex interactions and linkages are:

- Within NOAA, satellite data from both the polar orbiting and geostationary satellite systems play a major role in the National Weather Service's increasingly accurate and timely forecasts and warnings over the United States. These data are indispensable in providing prompt warnings of severe weather events and in preparing more reliable longer term weather forecasts.

- Civil and military weather satellite systems are complementary and mutually supportive. Both communities operate polar orbiting systems designed to meet the unique needs of their respective service communities. Satellite data are shared between the civil and military users. NOAA, the U.S. Air Force, and the U.S. Navy have recently embarked on a formal shared data processing program. The Department of Defense makes significant use of the capabilities of NOAA's geostationary weather satellites.

- The Departments of Agriculture and Interior, the Corps of Engineers and NOAA share hydrological data collected in regional networks of rainfall gauges and stream flow gauges operated by each agency to meet their particular needs. These data are collected by NOAA's geostationary weather satellites and are provided to the various Federal and state agencies concerned with flood forecasting, flood control, irrigation, and fresh water management.

- Increasingly, the Department of Agriculture and other agencies use NOAA weather satellite imagery and information derived from satellite data, along with Landsat data, in forecasting production of wheat and other crops of great importance in international commodities trading.

- National aviation weather forecast and dissemination responsibilities are shared between NOAA and the Federal Aviation Administration . NOAA's international aviation weather forecast area of responsibility meshes with those of other nations under the International Civil Aviation Organization. Civil weather satellites provide data that is indispensable in these aviation services.

- Weather services provided by the private sector are based on NOAA's weather satellite images and data, basic weather products, and conventional global weather data.

- Almost all the governments of the world have freely exchanged weather data, analyses, and forecasts for over a hundred years. For almost 20 years this international data exchange has included weather satellite data. Both civil and military weather services in the United States would be impacted if foreign satellites and non-satellites data either were no longer available, or available at a cost the Federal Government could not afford.

- The dedicated satellite control facilities and data processing equipment used for the polar and geostationary meteorological satellites are not duplicated in NASA-developed Landsat-D equipment, nor in the equipment in commercial communications satellite systems. Consequently, although the aggregation of remote sensing satellites in the Department of Commerce provides a coherent focus for the activities, no elimination or consolidation of equipment is feasible for the current generations of satellites.

- Modifications are presently underway in the method of incorporating meteorological satellite data into the forecasts of the National Weather Service (NWS). These include changes in the data processing flow and the polar-orbiting satellite's Equator crossing time to provide more timely inputs to the Limited Fine Mesh model. They also include the transition of the Visible Infrared Spin Scan Radiometer Atmospheric Sounder (VAS) from experimental to operational service. These activities are collaborative efforts between the National Earth Satellite Service (NESS) and NWS, and are not separable.

- Processing of data from the meteorological satellites is accomplished on a large NOAA computer shared by NWS and NESS.

- Cooperative opportunities remain unexplored for the use of a foreign polar orbiting satellite to complement the U.S. low-altitude systems, and to provide redundancy. The technology is available in Japan and Europe to produce and launch a unique, but compatible, polar orbiting metsat. Now that the Administration has decided to reduce from two to one polar orbiters, foreign entities, who are even more reliant upon the data than the United States, may find this to be an attractive international effort.

- Federal procurement of data from a commercial operator may be more costly. A private firm will require a return on its investment and for the foreseeable future will probably look to the Federal Government (which now accounts for better than 95% of the market for weather satellite data) and, in particular to NOAA, for such a return. If the Federal Government adheres to its longstanding policy of cost-free dissemination of weather data worldwide, it must compensate the private owner accordingly, thereby increasing Federal costs. If it does not, the U.S. commercial entity presumably would charge other national governments for weather data. Both NOAA and DOD might then have to buy weather data from other countries, with a resultant net increase in cost to the U.S. Government to acquire the global weather data needed for civil and military purposes. Further, some economies related to government operation (i.e., DOD/NOAA joint procurement of satellites and interagency processing of civil/military data) might not be possible were the weather systems privately owned.

## II. Discussion of Options

There are three options for further analysis of commercializing the civil weather satellites: (1) initiate policy issues concurrently with preparing the work statement used in the competitive selection process described in OMB Circular A-76 to determine cost impacts, (2) after a preliminary analysis of the policy implications of commercialization, initiate the A-76 process, if appropriate, and (3) reject further consideration of commercialization of the civil weather satellite program at this time.

Pros and cons of these options follow:

Option 1. Address the national and international policy issues associated with commercializing civil weather satellite services concurrently with initiating the review process described in OMB Circular A-76 to determine cost impacts.

Pro

1. Avoids long-term policy studies which OMB, OSTP and NSC staff believe are not required.

2. Allows decisions to be made several months earlier than under Option 2.

3. Savings, if any, would reduce the Federal budget earlier.

4. Would provide a clear signal of the Administration's intention to meet its civil weather satellite data needs from the private sector, if it is cost effective to do so and policy considerations permit.

Con

1. Allows only a very short time to assess carefully and resolve the national security and national and international policy implications of commercialization.

2. There may not be time to consider options or the future Federal role in the provision of weather services.

3. Precludes consideration of other alternatives in reducing the total Federal costs for weather satellite data, such as increased mutual support of the requirements of the civil and defense sectors and possible forms of internationalization.

4. The preparation of performance specifications to which a private owner/operator must respond are complex and must be responsive to the policy determinations. Premature statement of these requirements could result in a service that is not responsive to future Federal needs. Subsequent amendment of these statements could necessitate a new bidding process with the result that the availability of the required cost information could be delayed longer than in Option 2.

5. Decisions made as a result of the A-76 bidding process will govern government civil and military weather activities for decades to come. Less than optimum decisions made prematurely could adversely impact both civil and military weather activities. They could result in greater rather than smaller long-term Federal costs.

Option - 2 Conduct analyses on the national and international policy issues associated with commercializing civil weather satellite services, make preliminary estimates of the cost impacts of various forms of commercialization, and, if warranted, conduct the A-76 bidding process to determine actual cost impacts.

Pro

1. Permits civil weather satellite policy decisions to be made based on more comprehensive analyses of national security and national and international issues.

2. Allows consideration of some alternatives other than commercialization to achieve the goal of reducing Federal civil and military expenditures for weather satellite data.

Con

1. Decisions to commercialize civil weather satellite programs would be delayed by perhaps six months. Savings, if any, would be delayed that long.

2. Does not provide as clear a signal that the Administration intends to meet its weather satellite data needs from the private sector, if it is cost effective to do so.

3. Initiates in-depth, detailed policy studies which the OMB and NSC staff believe are not required.

Option - 3 Conclude that the national security and international policy issues associated with commercializing civil weather satellites would so disrupt the complex linkages between these satellite services and the civil and military weather programs that commercialization would be unwise.

Pro

1. Avoids unnecessary national security problems which are considered by many to be very difficult to resolve.

2. Avoids an unnecessary and complex regulatory regime for the private sector.

3. Avoids problems in the international exchange of data.

4. Avoids complications and legal problems associated with the "freedom of information act."

5. Avoids military involvement in a commercial venture with possible foreign policy implications. (See classified attachment for further explanation.)

6. Permits DOC/NOAA and other agencies to continue investigation of achieving economies through cooperative weather satellite programs such as shared data processing.

7. Permits the government greater flexibility in responding to unforeseeable changes in weather services requirements (civil and military).

8. Avoids a single private sector operator creating a monopoly on weather satellite services and being in a position to dictate future services and prices for those services.

Con

1. One company has expressed interest in investing in both the land and weather satellite programs as a composite business enterprise. A decision not to commercialize the weather satellite program might well dampen that company's interest in Landsat.

2. Conceivably, private sector operation of the weather satellite program could prove more cost effective than governmental operation.