Lecture 14 (10-31-83)

31 October 1983

ORGANIZATION AND MANAGEMENT TOPICS

I. INTRODUCTION

A. I already have indicated a number of management techniques I have found useful in developing the meteorological satellite program in the U.S.A., such as in establishing new system components or in maintaining and improving software systems.

B. We also have talked about some international aspects, such as the network of geostationary satellites, cooperative efforts under GARP and WWW, etc.

C. Today, I will cover

1. Internal U.S:
   a. NESS organization
   b. NESDIS organization
   c. Comparison of a. + b.
   d. Relationship with NASA
2. International relationships, including:
   a. Bilateral with the USSR
   b. Bilateral with U.K. + France c. Other nations.
   d. WMO, Satellite Panel. and WWW.
   ~~e. With COSPAR and WMO/ICSU [illegible] for GARP~~
   e. Role of and reason for CGMS.
3. Look at the future, based on the past experience and present problems.

14 (10-31-83)

II. NESS and NESDIS ORGANIZATIONS

A. My guiding principle is that organization structure should facilitate people in their working relationships. The structure should reflect the working needs, strengths and weakness of the people employed. If there are personnel or personality problems, it may be desirable to change the organization structure. If people are forced to work within a rigid structure that doesn't reflect their talents and limitations, the results can be less than satisfactory to the work of the organization.

B. The rule ~~that~~ of avoiding a "double barrier" at one place should be followed: the organizational barrier and the geographic barrier. Communication among people, especially across organizational and geographic barriers, is very important and very difficult.

C. Above leads me to two conclusions:

1. Organization charts are simply "instantaneous "snapshots in time" of how a group of people is working.
   - Span of control problems.
2. Great care should be exercised ~~by~~ in considering the use of another organization's structure, especially if all the reasons behind it (including personalities) aren't known and understood.

D. NESS ORGANIZATION

1. Chart reflects organization as of 1981.

Figure 14-1 (Vu-graph) – Explain main components.

2a. Asst. Admin. for Sats. – Almost totally consumed in policy and politics; located at DOC downtown, with very small staff, including Office of Policy and Planning.

B. Deputy Asst. Administrator for Sats. – Served as "general manager" and had principal office at FB-4 Suitland where most of the working activity of NESS was headquartered.

4 Primary staff/management offices:

- Policy & Planning (primarily political, policy in government)
- Executive Office (paper flow, monitoring deadlines)
- Resources + Management Services (RAMS)
- External Relations. (international; users)

5d. Operating offices:

- Systems Development → Earth Sciences Lab: Atmospheric, Ocean, Land
- Research – (Development laboratory: bridge with university community.) U. Wisc. & CSU
- Satellite Operations
- Data Services. (Bridge with NWS – Satellite Services Division.)

6. Other mechanisms re key program areas, such as satellite soundings, or major projects, such as TIROS N ground system and data system.

NATIONAL EARTH SATELLITE SERVICE

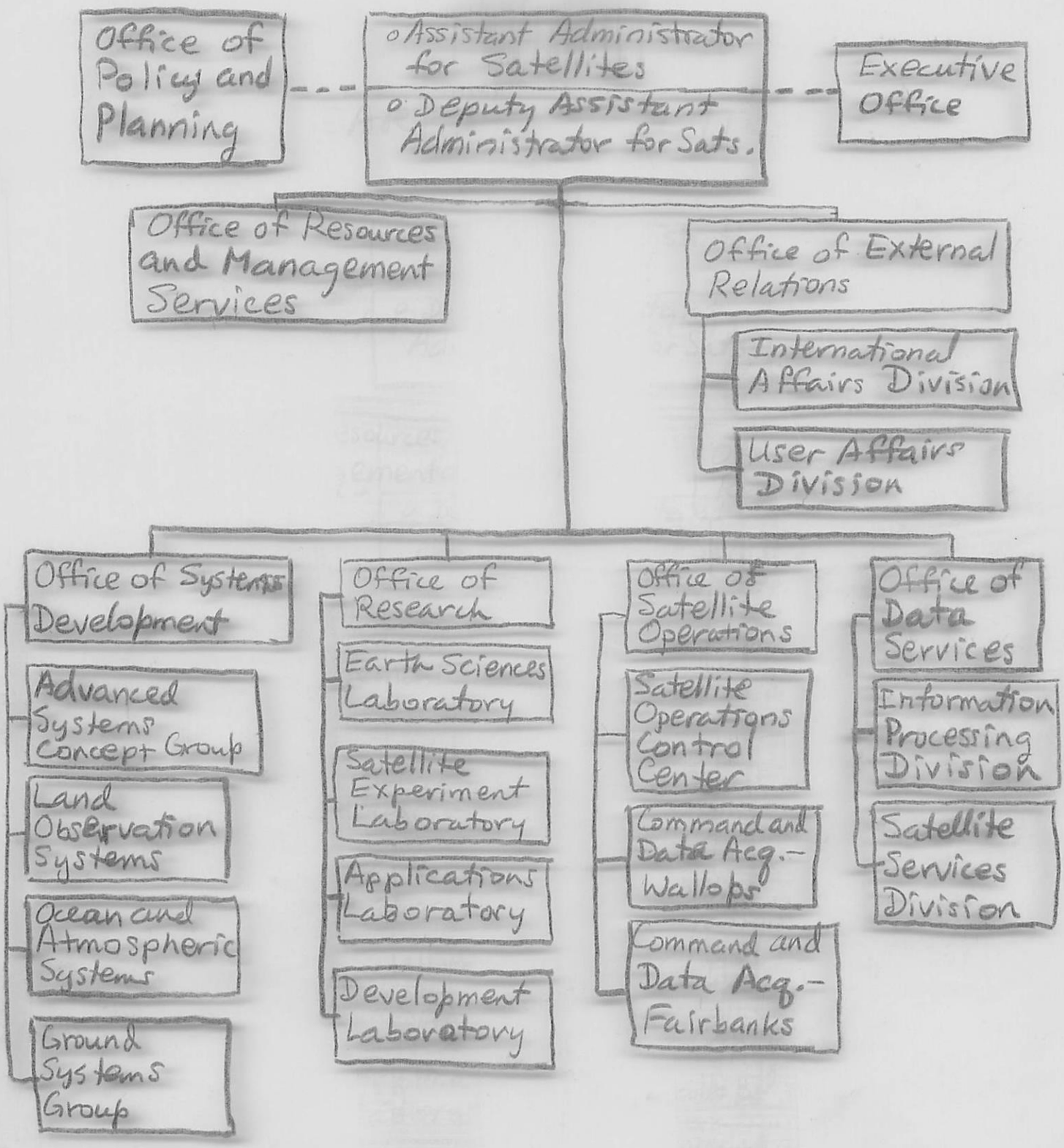


Figure 14-1

1981

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

NATIONAL EARTH SATELLITE SERVICE

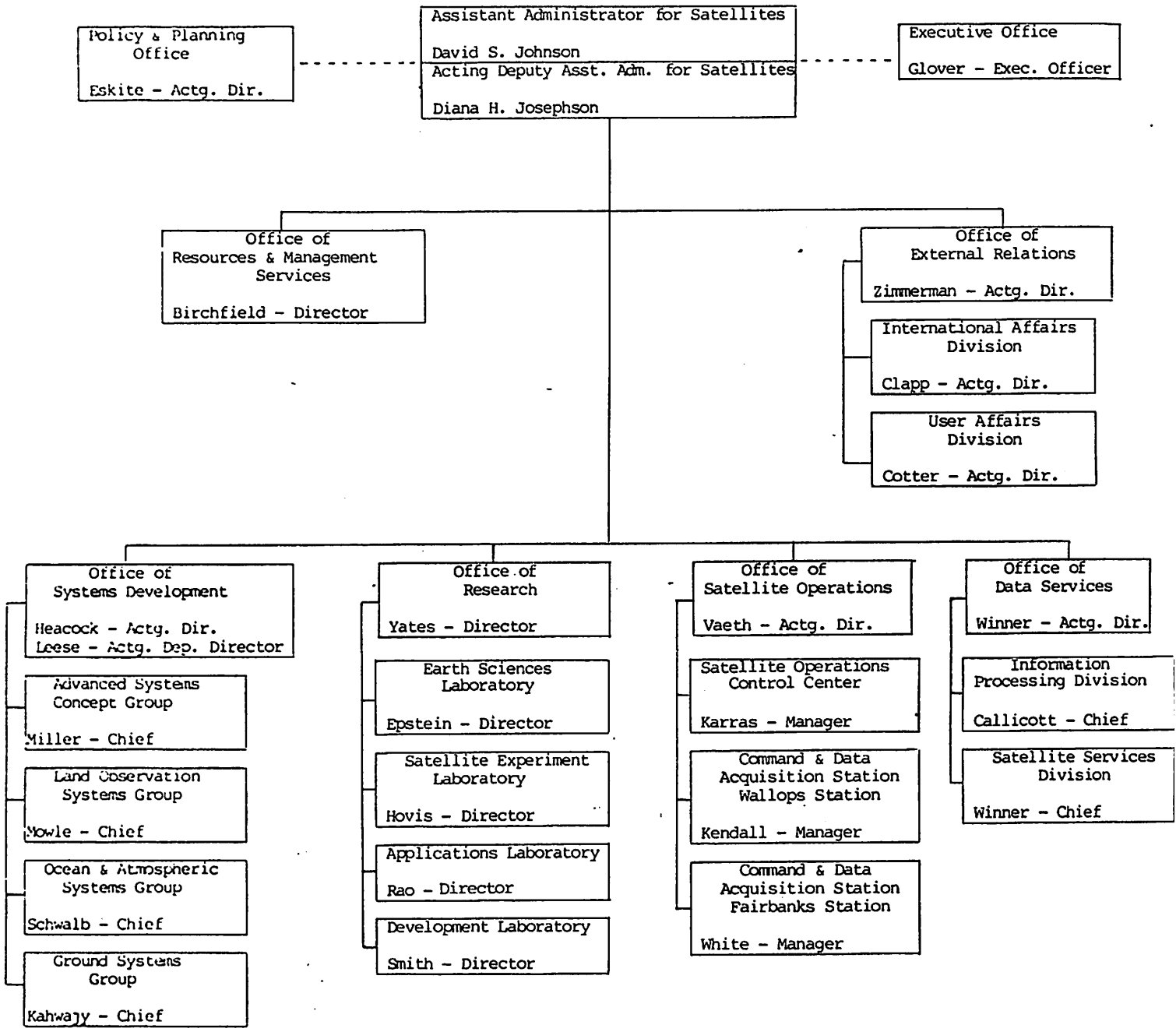


Figure 14-1 B

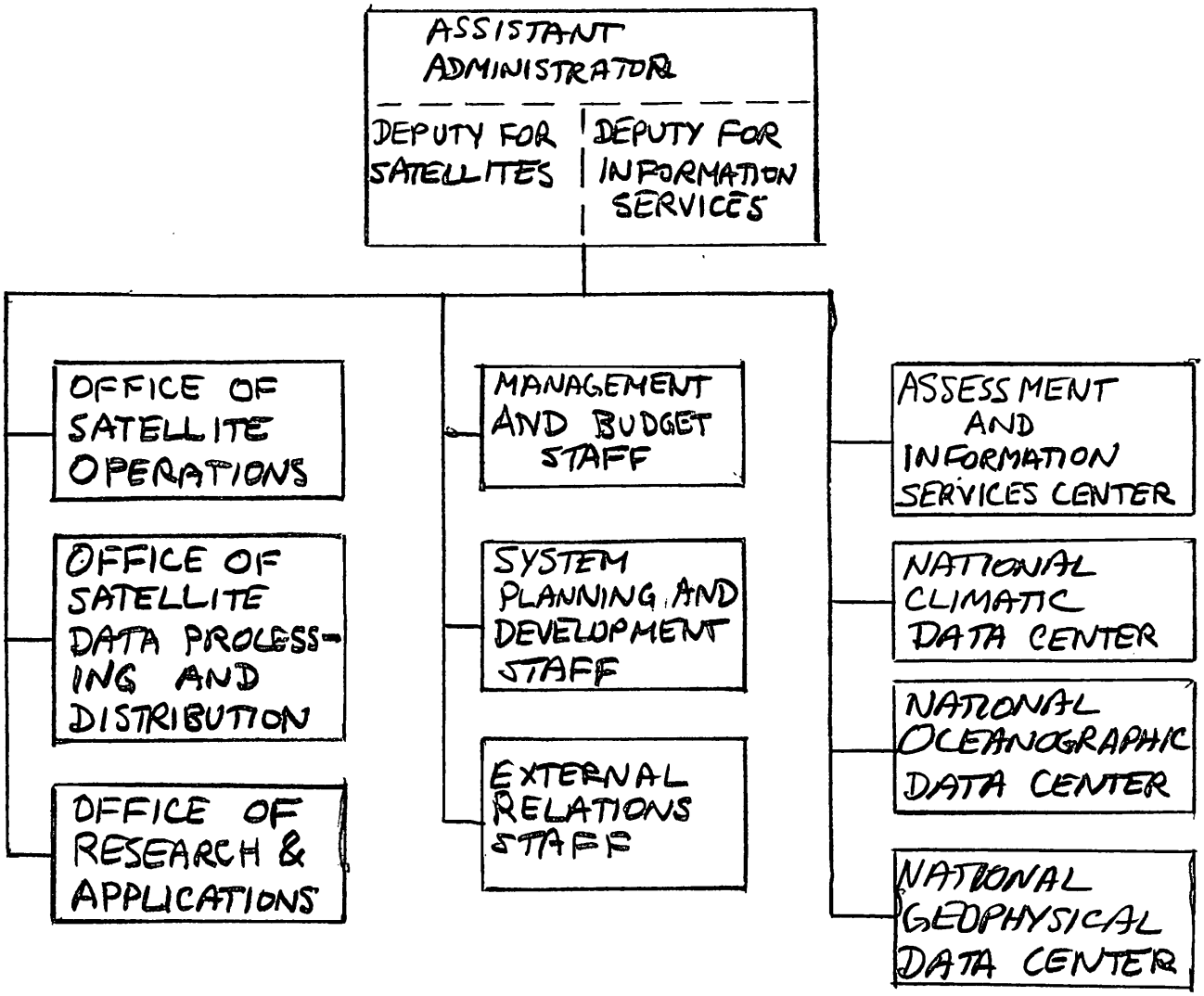
1981

E. CURRENT NESDIS Organization

Figure 14-2 (Vu-GRAPH)

1. Primarily resulted from external decision to merge NESS with EDIS to create NESDIS.
   - Functions of the two old organizations are still largely separate except policy formulation (Asst. Administrator), administrative management and budget (now merged)
2. EDIS was weak & limited in systems development & external relations. Their small efforts merged with those of NESS.
3. Office of Satellite Operations – no change
4. Office of Satellite Data Processing and Distribution = essentially old NESS Office of Data Services.
5. Office of Research & Applications basically old NESS Office of Research. (Small part of EDIS added)
6. Assessment & Info. Services Center, NCDC, NODC & NGDC are all former EDIS
7. Dual deputies: one for satellites & one for information services. Leaves the two former organizations largely independent.
5. Debatable re value of merging EDIS with NESS. NOAA now has added all aircraft operations to NESDIS!

NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE (NESDIS)



JANUARY 1983

III. Relationships with NASA.

A. Were difficult in early days after deciding in 1961 to establish operational system. Outstanding beginning in 1964, following personnel changes and a new agreement. Some deterioration beginning in 1982, because of reductions in NASA budget.

B. Formal agreement between NASA and DOC/NOAA.

1. NASA responsible for space technology, R+D.
   - NASA fund development + proof of concept for operational system. (Funding now dropped.)
   - NASA construct and launch operational satellites for NOAA under "contract" with NOAA. NOAA funds this activity.

2. NOAA responsible for operational system, including funding.
   - Specifies space components needed to NASA, and supervises NASA activity. NOAA pays for this effort.
   - NOAA designs, contracts for + operates all of the ground systems.

3. A NOAA-NASA board oversees and coordinates the activities.

[NOAA responsible for all U.S. Government civil operational remote sensing satellites, i.e., meteorology, land + ocean.]

IV. International bilateral relationships

A. USSR agreement established in 1963, now essentially inactive.

1. Had a facsimile-teletypewriter circuit between Switland and Moscow; of little value to the U.S. Primary problem was low quality and lack of timeliness of Soviet satellite data.

2. Tried to cooperate on the design and development of sensing techniques and data processing, but little results.

B. U.K. and France

1. Frequent scientific exchanges and collaboration.
2. U.K. provides, at their cost, the Stratospheric Sounding Unit for TOVS on the NOAA satellites.
3. France provides, at their cost, the ARGOS Data Collection and Location System on the NOAA satellites. (They also are providing part of the Search and Rescue (SAR) system being flown on the NOAA satellites.)
4. Now discussing future cooperation.
   - U.K. provide humidity portion of AMSU
   - France continue ARGOS.

C. NESS has provided extensive help and training to many other countries, ranging from interpretation and APT training to training of ESA, Japan and India preparatory to their designing, building and operating geostationary meteorological satellites.

D. World Meteorological Organization.

1. Played a key role in the formulation of the World Weather Watch Program 1962, ef. seq.
   - NESS provided satellite + systems planning support during the formative years.
2. The E.C. Panel of Experts on Satellites has had varying success.
   - Primarily tries to focus attention of the Organization and its components on satellite matters, particularly in developing requirements and providing training.
   - It hasn't been able to plan or coordinate space systems, because the members either have lacked the background or authority for such work.
   - Newly reconstituted Panel will concentrate on thorough review of requirements and revision/update of WMO documents on satellites.
3. WWW could not exist without satellites. Will play a pivotal role in any improvement of the WWW.
   - There has been some difficulty in CBS and its Working Groups with the lack of satellite expertese.
   - The Integrated System Study will require significant contribution by satellite experts.
4. Many other WMO programs, such as the WCP, WCRP, hydrology, marine, etc. are dependent on satellite data and services.

- In WCRP, the main experiments proposed so far are based on space technology.
  E.g., International Satellite Cloud Climatology Program (ISCCP) and World Ocean Circulation Experiment (WOCE).
- WCP global monitoring for long term changes undoubtedly will have to rely heavily on satellite monitoring.

5. Problem exists of organizing these international efforts, obtaining the required national contributions, and coordinating the effort to produce the desired results.
   - GARP and FGGE was a landmark in such activities.
   - Can it be done again? Or has the political and economic situation changed too much?

E. Consultation on Geostationary Meteorological Satellites (CGMS).

1. Started in 1971 to provide means for geostationary meteorological satellite designers to explore ways in which it was practical to coordinate the designs for the benefit of all.
2. Success based on fact that no commitments required at meetings. Only technical (and schedule) matters are explored. All commitments are handled formally after the technical meetings.
3. Mechanism acceptable to those groups (e.g., Japan's NASDA, Europe's ESA, and USA's NASA) who were uncomfortable with WMO or any formal intergovernmental arrangement.
4. Has worked amazingly well; WMO has been involved in all meetings; they often take place at WMO Headquarters

V. A look at the future

To predict the future of meteorological satellites and their associated organization and management arrangements is at least as difficult as forecasting the weather accurately for a month in advance! But some things, I am willing to guess at least.

A. I believe that operation of meteorological satellites in the U.S.A. will continue as a government function, but that there will be increased pressure for greater international contributions to the over-all system.

B. Collaboration with USSR is not likely until-

1. They catch up technically
2. General relations (politically) improve.

C. I would expect continued excellent cooperation among those groups contributing geostationary metsats. There may be even greater convergence of design in the "next generation."

1. This will depend on economics and the status of technology world-wide at the time.

D. I see some sort of multilateral agreement (or series of agreements) to share in the cost of satellites. Most likely will be through contributions of equipment and services — not money. Let me give one possible example regarding the polar metsats:

1. Europe provide the launchings via Ariane.
2. U.K. provide the AMSU humidity instruments.
3. France provide ARGOS and Search and Rescue.
4. PRC provide the APT and HRPT data systems.
5. Country A provide the AMSU temperature instruments.
6. Country B provide the AVHRR instruments
7. Country C provide HIRS instruments
8. etc.
9. etc.
10. etc.
11. USA provide spacecraft, integration and test.

It would be a very difficult management task to accomplish with that many participants, but it isn't too different from the way ESA has to operate.

E. I expect that WMO's main involvement will continue to be:

1. Stating international requirements for WMO programs.
2. Providing information
3. Providing training
4. Providing assistance to Members in acquiring ground equipment.

I do not think they will be allowed to become the operator of satellite systems or provide central design and management. At best, WMO will be involved in the coordination.

F. I don't expect rapid changes in operational systems because of cost and their current high state of development.