Can classified data help environmental studies? ................................................................. 2

Al Gore organized this science assessment

Some old satellite data was declassified
- Pictures help to see changes in forests and cities

And we got better data for world elevation

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NOTE: Ready to scan May 3, 2006, Doc RJ0394, 57 p

Roy Jenne
May 3, 2006

◼ Is there a way to get better elevation data for earth?
  • A few years later they ran a shuttle mission to measure this data.

◼ Old satellites took pictures that were classified.
  • These could be used to view 30 or 40 year changes in cities and in forests.
  • Because of the ETF studies in 1992–93 a number of the older pictures have been declassified.

◼ Is there other hidden data? Yes.

◼ Meetings of the Environmental Task Force (ETF) were held during 1992–93.

◼ This project was initiated by Al Gore.

Two of us from NCAR were on the ETF.

Roy Jenne
Sep 2004
Can Classified Data Help Environmental Studies?

(Two of us from NCAR participated)

Senator Gore called a meeting in Nov 1991 to explore whether some of the classified data for land and ocean, etc. could help in studies of the environment. There were about 20 of us in the room. Our group at NCAR had gathered world elevation data for many years to stay ahead of the needs of climate and weather modelers. One better set of elevation data was classified because of agreements with other countries.

- I pointed out that we had better topography data for Venus than for the Earth.
- Some classifications were reduced. And later in the 1990s, we got a good shuttle flight to measure the earth's elevation.

THE ENVIRONMENTAL TASK FORCE (STARTS OCT 1992)

About 70 of us from the US were members of the Environmental Task Force (two from NCAR). They first did background security clearances. Then we attended a series of meetings in the Washington DC area.

- The list of names was not classified, but it was not released. The idea was that if some bad guys thought that we knew a lot of intelligence facts, it would be risky.
- Vice President Gore sent us each a plaque in Sep 1993, copy enclosed.

68 names on the chart of the Envr Task Force
- Plus people from MITRE to help
- Plus others from the government

Roy Jenne
Oct 2002
Dr. Roy L. Jenne  
Manager, Data Support Section  
Scientific Computing Division  
National Center for Atmospheric Research  
1850 Table Mesa Drive  
Boulder, CO 80307-3000

Dear Dr. Jenne:

It is with the greatest of pleasure that I write to you to extend my warmest thanks for your contributions to the Environmental Task Force (ETF).

When I initiated the process that led to the ETF several years ago, I was motivated by the hope the assets of the national security community would prove to be of value to environmental scientists. Due in large measure to your efforts as participant on the Data Systems – What Scientists Do with Data Panel, we are beginning to see the fulfillment of that hope. Drawing on the findings and recommendations from your report, I anticipate that we will be able to chart a path that will clarify the key environmental issues that confront our society and lead to the formation of wise policies to ameliorate those problems.

In closing, let me thank you again for contributing your time and intellectual energies in pursuit of such a worthy vision. The nation truly owes you a debt of gratitude for your participation. I would hope that you would be able to continue to participate in this process as we build upon the foundation that you have helped establish.

Sincerely,

[Signature]

Al Gore
KEY STAFF AIDES

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Legislative Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roy Neel</td>
<td>Admin. Asst.</td>
<td></td>
</tr>
<tr>
<td>Eugene Forrester (615-736-5129)</td>
<td>State Dir.</td>
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</tr>
<tr>
<td>Marla Romash</td>
<td>Press Secy.</td>
<td></td>
</tr>
<tr>
<td>Beth Prichard</td>
<td>Exec. Asst./Scheduler</td>
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<tr>
<td>Mary M. Overbey</td>
<td>Office Mgr.</td>
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<tr>
<td>Gregory Simon</td>
<td>Legis. Dir.</td>
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</tr>
<tr>
<td>Charlotte Hayes</td>
<td>Legis. Asst.</td>
<td>Education, Labor, Health</td>
</tr>
<tr>
<td>Jacque Lawing</td>
<td>Legis. Asst.</td>
<td>Agriculture, Housing</td>
</tr>
<tr>
<td>Katie McGinty</td>
<td>Legis. Asst.</td>
<td>Energy/Environment</td>
</tr>
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</table>

COMMITTEE ASSIGNMENTS

Committee                  Subcommittee(s)
Armed Services
- Defense Industry and Technology • Projection Forces and Regional Defense • Strategic Forces and Nuclear Deterrence

Commerce, Science, and Transportation
- Science, Technology, and Space, Chairman • Communications
- Consumer • National Ocean Policy Study • Surface Transportation

Rules and Administration
- No subcommittees

Joint Economic Committee
- Economic Resources and Competitiveness • Education and Health • Investment, Jobs, and Prices

Joint Printing
- No subcommittees

OTHER POSITIONS

- Senate Arms Control Observer Group
- Congressional Populist Caucus
- Senate Children's Caucus
- Senate Footwear Caucus
- Environmental and Energy Study Conference, Executive Committee
- Congressional Clearinghouse on the Future, Co-Chairman
- Senate Rural Health Caucus
- The Congressional Fire Services Caucus, Senate Co-Chairman
- Congressional Coalition on Adoption
- Vietnam Era Veterans in Congress
- Congressional Fire Services Institute, Honorary Co-Chairman

STATE OFFICES

403 Federal Bldg., Memphis, TN 38103 .......................... (901) 544-4224
B-9 Federal Bldg., 109 So. Highland St., Jackson, TN 38301 ........ (901) 424-0305
Smith County Courthouse, Carthage, TN 37030 ..................... (615) 735-0173
315 Post Office Bldg., Knoxville, TN 37902 ........................ (615) 673-4595
Suite 401, 214 2nd Ave. No., Nashville, TN 37201 ................ (615) 736-5129
256 Federal Bldg., Chattanooga, TN 37402 ........................ (615) 756-1328
9 E. Broad St., Cookeville, TN 38501 ............................... (615) 528-6475
Tri-City Regional Airport, Blountville, TN 37617 ................ (615) 323-6217

Strategic Environmental Research Development Program

Joint DOD/IGE program

$120M carried over from FY91

- data access & analysis (Core)
- planning horizon
- tech transfer

Summer 1991
© Congressional Yellow Book
An earlier meeting with
Gore in a US senate Office

- meeting Nov 21, 1991

See next page

Note: Clinton - Gore won the
election in Nov 1992
- So Gore became the Vice President
  of the US in Jan 1993

Roy Jenne
REPORT OF THE MEETING
ON
PRIORITY DATA NEEDS AND AVAILABILITY

SPONSORED BY
SENATOR AL GORE, JR.

DIRKSEN SENATE OFFICE BUILDING
ROOM 632
NOVEMBER 21, 1991

Prepared by: twelve of us
12 names are here

in the original

-R. J. enne

Note: There were about 20-25 total
people at this meeting with Gore.
It included our group of scientists,
people from the intelligence community, etc.
MEMO TO: Jim Baker
FROM: Roy Jenne

SUBJECT: Data Needs (Senator Gore Study)

This memo relates to our discussion with Senator Gore on November 21. I talked about the need for elevation data as noted below. There is a related need for water-cover data that I did not discuss. One could extend the classification of type of surface, but I do not want to complicate the problem too much. These are the terrain data needs that should be most important for the next five to eight years.

1. Need earth elevation for models.
   • Elevation data
     - 12 years ago we only had data at 1° resolution.
     - In early 1980, world elevation at 10 minute resolution (about 15 km) was made available (based on work by Navy-Monterey and NCAR).
     - This 10 minute data is used by most of the world’s forecast models and climate models.
     - What do we need for the new generation of models? Some already need world data at a resolution of one or two km. It would help to have these data by 1994.

2. Data to give the type of surface.

Several datasets are available that have land classification data (pasture, water, ice, forest, sand, etc) with resolutions of 50-100 km. We now are lacking data that can be used to generate the percentage of water cover within grid squares that may vary from 20 to 300 km. We need this data to adequately model the heat storage and evaporation. This need could be satisfied if the world dataset of elevation said whether each point was water or land. It could also be satisfied if there is a dataset that outlines world lakes, even small lakes. We need the approximate percentage coverage of water in a grid box; we don’t care very much if the water coverage is from 50 small lakes or one big one.

3. Ocean bathymetry.
   • Ocean depth data

We have a global dataset that gives ocean depth each five minutes. This is still satisfying most of the large-scale model needs, but the needs for higher resolution data will gradually increase. In addition, there are other requirements for the higher resolution data.
The Environmental Task Force

- Started by Al Gore
- There were about 5 or 6 meetings
- Meetings were in 1992 and 1993

Next pages
Some correspondence to start the ETF meetings

Roy Janne
NCAR
April 13, 1992

Dr. Roy L. Jenne  
Manager, Data Support Section  
Scientific Computing Division  
National Computing Division  
National Center for Atmospheric Research  
P.O. Box 3000  
Boulder, Colorado  80307-3000

Dear Dr. Jenne:

When we met on November 21, I presented that discussion as a step toward a hoped-for exploration with our intelligence community of areas in which intelligence capabilities might be of help to environmental science. That process is about to take a major step forward, and the purpose of this letter is to bring you up to date and to discuss next steps.

On January 7, I wrote to Director of Central Intelligence Gates suggesting that the best way to proceed would be to establish a fully cleared panel of scientists, representative of the key disciplines, who would then be able to have direct, unconstrained discussions with intelligence experts. The objective of these talks would be to find out whether the intelligence community does in fact have information that would be of significant value to environmental science, and then to determine whether and how that information could be made available to the general scientific community.

On March 10, Mr. Gates informed me that he is ready to proceed along these lines: a decision that is strongly seconded by Senators Boren and Murkowski, the chairman and senior Republican members of the Senate Intelligence Committee. We are now moving on to implementation.

The process we have in mind runs as follows: I will submit a list of disciplines that should be represented in the scientific "search party" and a list of scientists who ought to be considered for selection. Because of the extreme sensitivity of the information to be dealt with, the ultimate size of the panel must be kept as small as possible, and there may be a trade-off between security and comprehensiveness. We’ll just have to see how it works out.

It would be highly desirable to get a panel formed and cleared at the earliest moment. Since time is a factor, one way to shorten the clearance process would be to identify scientists from the list of candidates who have security clearances at some level. Processing time would be the shortest for them. However, if it turns out that in order to get the best representation it is necessary to clear people
who have never been through the process at any level, we will have to deal with that as it arises.

The selection and screening process can proceed only on a voluntary basis. No one's name can be submitted by me without permission from that person. I am therefore asking you for cooperation at several levels. Attached is a list of persons who participated in our last meeting. Please review this and advise me whether the array of disciplines represented here is the right way to subdivide the environmental sciences for this task, given that this list must be compact. Second, tell me if you wish to be considered, and if so, please give me your social security number, birthdate, and the broad category of any clearances you currently hold (if you are interested, I will ensure that you are advised separately on the procedures involved in obtaining the necessary clearances.) Third, tell me if there are persons other than those on the attached list whom you think I should approach.

What I have described is an extremely forthcoming step by Mr. Gates, for which I know of no precedent. With your continued understanding and assistance, I believe that it will lead to a very effective exchange of knowledge across barriers that until now would have been virtually impermeable.

Sincerely,

Albert Gore, Jr.
United States Senator

AG/lsf

They ran a background security clearance on each of us.
United States Senate
WASHINGTON, DC 20510

August 5, 1992

Dr. Roy L. Jenne
Science Computing Division
National Center for Atmospheric Research
Table Mesa Drive
Boulder, Colorado  80303

Dear Dr. Jenne:

I want to thank you for expressing your readiness to serve on the panel to explore the potential for information-sharing between the intelligence and environmental science communities. I know this represents a potentially significant commitment of time and energy, and I appreciate your willingness to participate.

You have been chosen to move on to the next phase of the selection process, which is a background investigation by the U.S. Government. You will soon receive materials on the security investigation process under separate cover. Please make sure that these materials are completed and returned to the sender by August 24. Unless these materials are received by that date, your security review will not be completed in time for you to become a member of the panel.

Panel members will be required to attend meetings in Washington on October 19-20 and November 16-20. While the scheduling of other meetings will be flexible and efforts will be made to accommodate the calendars of all involved, the dates of these mandatory meetings cannot be moved. If you determine that you will be unable to attend these meetings—and therefore unable to serve on the panel—please notify Brad Wiss of my staff at (202) 224-4944.

Again, thank you for your willingness to take part in this important project. I believe it may yield real results for all of us who are trying to address the global environmental crisis.

Sincerely,

Albert Gore, Jr.
United States Senator

AG/bww
September 4, 1992

Dr. Roy L. Jenne
National Center for Atmospheric Research
Data Support Section, Scientific Computing Division
1850 Table Mesa Drive
Boulder, CO 80307-3000

Dear Dr. Jenne:

I want to thank you again for offering to serve on the task force to explore the potential for information-sharing between the intelligence and environmental science communities. Your clearance paperwork has been received and is currently being processed by the government.

I would now like to tell you about plans worked out in conjunction with the task force established by Mr. Gates for the first two meetings. The October meeting will focus on providing an understanding of the needs of the environmental science community to the intelligence community. This will be done at the unclassified level and will take two days to complete. At the November meeting, representatives of the intelligence community will brief the task force on the current and near-term future capabilities of our classified intelligence systems, as well as on the historical data holdings of the members of the intelligence community. This meeting will be conducted at the appropriate security level. The November meeting will also be the time to lay out the strategy for the remainder of the work.

The task force will be organized into ten panels. The first eight will focus on the following environmental science disciplines:

- Clouds, Radiation, Water Vapor, and Precipitation
- Land Use/Population Dynamics and Economics and Urban Development
- Solid Earth, Including Volcanoes and Their Role in Climate Change
- Polar Ice Sheets and Sea Level
- Land Use, Land Cover, and Primary Productivity
- Greenhouse Gases and Their Atmospheric Transformations
- Ocean Productivity, Circulation, and Air-Sea Exchange
- Ozone Chemistry and Coupling with Climate and the Biosphere

The other two panels will focus on the following sensor and information processing issues:

- Sensor Characteristics – Links Between Sensors and Science
- Data Systems – What Scientists Do With Data

There will also be several members of the task force who will work with all of the panels on an at-large basis.

("Mr. Gates: Director of the CIA")
The purpose of the October meeting is to identify data gaps in the environmental science disciplines listed above. We are asking you to serve on the Data Systems – What Scientists Do With Data Panel during the October meeting. The scientists identified in the enclosure have been invited to serve on the panel with you during this meeting. The meeting will be organized as a series of mini-roundtables, with each roundtable focusing on one of the disciplines. I have asked the chairs of the environmental science discipline panels to summarize the present capabilities for data acquisition in their discipline, identify where there are gaps, and suggest technical capabilities (satellite, airborne, or in situ) that could fill these gaps. Your task is to help the other panels with their work, particularly in the area of data processing. During the second day of the October meeting, the environmental science panel chairs will present the results of their roundtable discussions to a group of government intelligence community representatives. These presentations will sharpen the government’s understanding of specific data needs so they can be addressed as directly and accurately as possible at the November meeting.

During the November meeting, members of the government intelligence community will make classified presentations focusing on the information needs identified during the October meeting. This will include information on their current and near-term capabilities, as well a review of their historical holdings that potentially satisfy the needs you have identified.

Both the October and November meetings will be held at The MITRE Corporation in McLean, Virginia. You will be receiving information from them soon on travel and accommodations for the meetings. If you need any additional information, please contact Mr. Brad Wiss of my staff at (202) 224-4944.

Once again, thank you for your willingness to participate in this important project.

Sincerely,

[Signature]

Albert Gore, Jr.
United States Senator

AG/

Enclosure
22 April 1992

Senator Albert Gore, Jr.
United States Senate
393 Russell Senate Office Building
Washington, DC 20510-4202

Dear Senator Gore:

I will now send a preliminary reply to your letter of April 13 concerning possible data release and the intelligence community. When Jim Baker returns from Japan in a few days, I want to discuss with him these overall matters and the representation of disciplines.

I would be willing to be on such a committee if the amount of time needed could be limited. I am involved in some large projects to reanalyze the whole atmosphere for many years. I worry about possible delays in this work. Concerning clearances, I was in the Air Force for about 10 years, leaving in early 1965. At Offutt AFB, I had a high-level, background security clearance. I doubt that part of the clearance is still in force. My Social Security number is 539 28 6073; DOB is 21 May 1931.

Thank you for your interest in these data.

Sincerely,

Roy Jenne
Senior Scientist

RJ:ob
Dr. Roy L. Jenne  
Scientific Computing Division  
National Center for Atmospheric Research  
1850 Table Mesa Drive  
Boulder, CO 80303

Dear Dr. Jenne:

The MITRE Corporation will be providing administrative support to the Environmental Task Force. As the Project Leader of this work at MITRE, I would like to welcome you to the task force team. In order for our staff to assist you as efficiently as possible, I would appreciate it if you could take a few moments to complete the enclosed "Profile Sheet." This information is necessary to arrange for your travel to the Kick-off Meeting on October 19 and 20, 1992, and will also be kept on-file and used for all subsequent meetings. It would be very helpful to us if you could return the completed form in the attached envelope by September 23.

We will soon be sending you additional details on the October meeting. We look forward to working with you. Please feel free to call Gloria Carrier or Judy Reger at 1-800-627-4578 if you have any questions or if we can assist you in any way.

Sincerely,

Gary L. Hollis  
Project Leader  
Environmental Task Force

GLH:jar

Enclosures: Profile sheet  
Return stamped envelope
21 September 1992

TO MEMBERS OF THE ENVIRONMENTAL TASK FORCE:

During your work on the Environmental Task Force you will be given access to highly sensitive CIA information relating to imagery and other data derived from overhead reconnaissance systems. As part of the security clearance process necessary to give you that access, you will be asked to sign a standard nondisclosure agreement, and I have attached a blank sample of it to this letter. The nondisclosure agreement pertains to "sensitive compartmented information", known by its acronym, "SCI". The nature of the information and its sensitivity will be further described to you during the meeting scheduled in Washington on 16 November 1992, at which time you will be asked to sign the nondisclosure agreement.

Paragraph Four of the agreement describes a prepublication review requirement. As academics who are distinguished in a number of scientific disciplines, members of the Task Force may be concerned about the effect of this requirement on their professional writings. I expect the effect to be minimal because prepublication review by CIA is only required if you intend to discuss some public medium either intelligence data or CIA activities that you know about as a result of your service on the Task Force. In addition, during the prepublication review only classified information (information that could damage national security if released to unauthorized persons) is subject to objections to publication. Review is only required if you intend to discuss SCI or related CIA activities revealed to you while you are on the Task Force, and not when you simply continue to publish in your respective scientific fields.

In addition, other US government agencies may grant access to classified information that they originated, under the terms of similar nondisclosure agreements with prepublication review requirements.
I am the Chairman of the Publications Review Board at CIA. I am responsible for the management of the Agency's prepublication review of nonofficial manuscripts such as those you may wish to publish after serving on the Task Force. Please call me at (703) 351-2546 if I may answer any further questions or if you have serious concerns with the nondisclosure agreement. Thank you.

Sincerely,

Fred F. Manget
Chairman, Publications Review Board
Space Science Division
&
Backgrounds Data Center

Environmental Task Force Brief

12 January 1992

This paper is a draft. Comments welcome.

(only 2 pages here.)
Backgrounds Data Center

Agenda

- Data Centers
- Backgrounds Data Center
- Experiment Programs
  - MSX
  - RAIDS/ARGOS/SSULI
- VISTA
The Envir. Task Force

- There were about 5 or 6 meetings

- Next pages: A little Agenda info about 2 meetings

Roy Jenne
ENVIRONMENTAL TASK FORCE

Environmental Science Data Needs Meeting
Agenda

October 19-20, 1992

The MITRE Corporation
7525 Colshire Drive
McLean, Virginia 22102-3481
(703) 883-6123
South Lobby

Monday, October 19, 1992

7:30 – 8:00   Check-in
8:00 – 8:30   Welcome Remarks
   – Why are we here?
   – What are we going to do and not do?
8:30 – 10:00  Science Team Panels Meet to Develop Data Needs
10:00 – 10:30 Break
10:30 – 12:00 Science Team Panels Meet to Develop Data Needs
12:00 – 1:00  Lunch
1:00 – 3:00   Science Team Panels Meet to Develop Data Needs
3:00 – 3:30   Break
3:30 – 5:30   Science Team Panels Meet to Develop Data Needs
5:30         Adjourn
6:30 – 8:30   Reception for Scientists and Invited Government Guests
              at the Sheraton Premiere

Tuesday, October 20, 1992

7:30 – 8:00   Check-in for ETF Science Team
8:00 – 9:00   Restricted Meeting for ETF Science Team
8:30 – 9:00   Check-in for Government and Other Scientists
9:00 – 10:00  Science Team Presentations on Data Needs
10:00 – 10:30 Break
10:30 – 12:00 Science Team Presentations on Data Needs
12:00 – 1:00  Lunch
1:00 – 3:00   Science Team Presentations on Data Needs
3:00 – 3:30   Break
3:30 – 5:30   Science Team Presentations on Data Needs
5:30         Adjourn

The next page has more info about Oct 20
Environmental Science Data Needs Meeting
Agenda

October 19-20, 1992

The MITRE Corporation
7525 Colshire Drive
McLean, Virginia 22102-3481
(703) 883-6123
South Lobby

Tuesday, October 20, 1992

7:30 – 8:00  Check-in for Environmental Task Force Science Team
8:00 – 8:45  Restricted Meeting for Environmental Task Force Science Team
8:45 – 9:00  Break and Move to Break-out Rooms
9:00 – 10:00 Science Team Panels Meet to Finalize Data Needs Presentations
10:00 – 10:15 Break and Move to Auditorium
10:15 – 11:45 Science Team Presentations on Data Needs (30 minutes each)
    • Clouds, Radiation, Water Vapor, and Precipitation Panel
    • Greenhouse Gases and Their Atmospheric Transformations Panel
    • Ocean Productivity, Circulation, Air-Sea Exchange, and Pollution Panel
11:45 – 12:00 Break
12:00 – 1:00  Science Team Presentations on Data Needs (30 minutes each)
    • Land Cover, Primary Productivity, and Environmental Restoration Panel
    • Polar Ice Sheets, Permafrost, and Sea Level Panel
1:00 – 2:00  Lunch in East Atrium and Cafeteria
1:00 – 3:05  Science Team Presentations on Data Needs
    • Geology and Solid Earth, Including Volcanoes and Their Role in Climate Change Panel (30 minutes)
    • Land Use, Population Dynamics and Economics and Urban Development Panel (30 minutes)
    • Environmental Applications Panel, (30 minutes)
    • Sensor Characteristics Panel Observations, (10 minutes)
    • Data Systems Panel Observations, (10 minutes)
    • Summary of Data Needs, Dr. Gordon MacDonald (15 minutes)
3:05 – 3:15  Wrap Up, Dr. Linda Zall
3:15 – 3:45  Break for Permanent Science Team Panelists and Steering Committee
Other Attendees Adjourn
3:45 – 5:00  Review Plans for November Meeting, Dr. Linda Zall
5:00  Adjourn
ENVIRONMENTAL TASK FORCE

Final Meeting Agenda

September 8-10, 1993

The MITRE Corporation
7525 Colshire Drive
McLean, Virginia 22102-3481
(703) 883-7271
South Lobby

Thursday, September 9, 1993

7:30 – 8:00  Check-in
8:00 – 8:30  Future Plans,
8:30 – 8:50  Classification
8:50 – 9:50  Derived Product
9:50 – 10:30 Science Team and Government Steering Committee Meeting in Auditorium
10:30 – 10:45 Break and Move to Panel Meeting Rooms
10:45 – 11:45 Work on ETF Final Report in SCIF
11:45 –  1:00  Lunch in East Atrium
1:00 – 1:30  Address by Director of Central Intelligence, Mr. James Woolsey
1:30 –  6:00  Work on ETF Final Report in SCIF
6:00 –  7:00  Dinner in East Atrium
7:00 – 10:00  Work on ETF

Friday, September 10, 1993

7:30 –  8:00  Check-in
8:00 – 11:30  Work on ETF
11:30 – 12:00 Address by N
               Mr. Leon
12:00 –  1:00  Lunch in East
1:00 –  4:00  Work on ETF
4:00 –  4:30  Wrap-up in M

I think we had
a total of 5 or 6
meetings — Roy Hanne

25
ENVIRONMENTAL TASK FORCE

Final Meeting Agenda

September 8-10, 1993

The MITRE Corporation
7525 Colshire Drive
McLean, Virginia 22102-3481
(703) 883-7271
South Lobby

Wednesday, September 8, 1993

7:30 – 8:00  Check-in
8:00 – 8:10  Welcome Remarks, Dr. Linda Zall
8:10 – 8:15  Administrative Information, Mr. Gary
8:15 – 8:25  Introductory Remarks, Dr. Gordo
8:25 – 8:30  FY93 Experiments, CDR George
8:30 – 9:00  GPS, Dr. John
9:00 – 9:30  Oceanographic Buoys, Dr. Mark
9:30 – 10:00 Master Directory, Dr. James Gu
10:00 – 10:30 Deforestation, Dr. Gordon  and Dr. Mit
10:30 – 11:00 Break
11:00 – 11:30 Vegetation Statistics, Dr. Anthony  and Dr. Hank
11:30 – 12:00 Land Cover, Dr. William Schlesinger, Dr. Boyd Strain,  
and Dr. Hank
12:00 – 1:00 Lunch in Executive Dining Room
1:00 – 1:30 Waste Site Examinations, Dr. Bert
1:30 – 2:00 Eastern Europe Pollution, Dr. Barre
2:00 – 2:30 Land Use, Dr. Dougli
2:30 – 3:00 Break
3:00 – 3:30 Tropospheric Water, Dr. John
3:30 – 4:00 Sea Ice Thickness, Dr. Norbert Ur  and Dr. Wilford
4:00 – 4:30 Dynamic Geology, Dr. Louis
4:30 – 5:00 Volcanic Thermal Activity, Dr. Thomas  and Dr. Darrell
5:00 – 5:30 Dynamic Deformation, Dr. Dallas  and Dr. Darrell
5:30 – 6:00 Open Discussion of Results of Experiments

7:00 – 9:00 Reception at the Sheraton Premiere
Data Delivery and Subsetting

Suppose that the basic data has been archived and many products have been prepared. Then we need various methods to give good user access to this data and to the information about the data. A selection of methods that can be used could be described. Also, we need information about costs. Fortunately, we are not completely in the dark on these issues; there are various examples across the community that provide reference information about methods and costs.

The problems and strategies of data access vary considerably with the size of the dataset. To give some feel for this, we will consider datasets in the categories of huge, mid size, and small. By small we are generally thinking of under 100 MB. Many are much smaller.

These categories of dataset size are fuzzy because a dataset may have 20 years of daily data for the world and have a volume of 30 GB; but if a person only wants one day of data, that is a fairly small dataset. Another dataset may have monthly average observed data from 3000 stations for 100 years. If a person only needs data from a few stations, the volume is low. We have to be able to deliver various subsets of data. However, we should not spend a fortune to offer access services that are rarely used.

- Very Large Datasets

One example of a huge dataset is all of the data from Landsat or Spot satellites. These data may be taken in long swaths, but they are divided into scenes which are usually about 100 km by 100 km in size. As the pixel resolution increases (say from 80 m to 10 m), then the size of an archived scene decreases. The archives are set up to make it fairly easy to obtain one scene of data without having to read through mountains of data to find the scene. The user will have other software to help work with the data within one scene.

- Large or Middle-sized datasets

Consider global analyses form atmospheric models with a resolution of 50 to 200 km, and 15 to 30 levels in the vertical. Several variables are given at each level such as temperature, humidity and winds. Many terms such as precipitation, radiation, soil temperature, and clouds are also calculated. When all of these variables are archived every 6 hours for many years, the archives get large, even when the data are properly packed.

Some users will want to obtain nearly all of the data, in the vertical stack, for a few days or years. It has to be easy to satisfy their needs. Other people will want the 15% of the data that is near the surface (or in the stratosphere), but not the rest. When 10 to 30 years of such data become available, many users will want to use long time series of data at one level. To make this access practical, the time series need to be extracted and stored as a duplicate dataset in this new order.

Access problems are similar for large datasets of observations from 8000 stations, each several hours, for many years, for continental regions or global. Some people want data for a few stations for 40 years. Others want data for all observations in the Western U.S.
for many years, and others need all of the world's data together for any given 6-hour period. We must not design data systems that require a random access for each of millions of observations, or they would be both horribly slow and ridiculously expensive.

- Small Datasets

Some of the small datasets at NCAR include global climatological grids for the world (surface and upper air); monthly global grids (500-km resolution) of surface temperature for land and oceans, starting in 1861; paleoclimate data from ocean cores covering several hundred thousand years; methane emissions from cattle, worldwide. Also, there are datasets from several of the world's climate models that make it easy for PIs to study the effects of climate change on crops, forests, water supply, etc. There are many more small datasets; they are usually kept in simple character formats that are very easy for PIs to use. These datasets are often small enough that it doesn't make sense to spend a lot of money to set up subsetting logic so that a user can obtain half of a small dataset instead of all of it.

A short text is available about some of the data systems that handle many requests per day for small datasets and provide a lot of information about data.
A little info about ETF

and

About some release of data

Roy Fanne
May 2005
CIA to release Cold War satellite photos

Associated Press
WASHINGTON — In a dramatic opening of its secretive past, the CIA announced Friday it will release 800,000 formerly classified Cold War-era photographs taken from spy satellites over the former Soviet Union.

It is the first such declassification since the early generation American reconnaissance satellites began monitoring Soviet military sites in August 1960.

The photos, only four of which were immediately available, cover virtually the entire territory of the former Soviet Union as well as much of the rest of the Earth. The full collection will not be available for another 18 months because the photos first will be cataloged by the National Archives.

Among the four photos released Friday is a somewhat fuzzy shot of an airstrip near Mys Schmita on the Chukchi Sea in the Soviet Far East. Taken Aug. 18, 1960, it was the first target of the first successful satellite mission.

Also released was a picture of a Soviet strategic bomber base, with Bison long-range bombers clearly visible on the airfield parking apron, near Dolon in the former Soviet republic of Kazakhstan. The shot was taken Aug. 20, 1966.

The other two photos released are of a volcano on the Kamchatka Peninsula in Russia’s Far East and of the Aral Sea on the border between Kazakhstan and Uzbekistan.

The declassification is part of a broader effort — including the release last fall of the CIA’s first assessments of Soviet nuclear forces — to disclose more of what U.S. intelligence agencies knew, or failed to learn, during the Cold War.

- The CIA will release 800,000 old pictures
- It helps to have old pictures
- Then we can see how a city changed
- or how a forest changed

— Ray Jenner
1. Objective

The objective of the Environmental Task Force/NASA Master Directory (ETF/MD) project is to make the location and basic characteristics of unclassified U.S. Government National Security data (primarily from the Department of Defense (DOD) and Intelligence Community (IC)) known to the Earth (and Space) science research community. At the outset of the study it was hypothesized that approximately 50 unclassified datasets were available for inclusion into the NASA MD from the DOD and IC. The ETF/MD project identified 42 DOD and IC datasets. Seven of these datasets have been entered into the MD and 35 datasets are in the process of being described for entry into the MD. In addition, approximately 50 DOD-sponsored datasets, publicly available through the Federal archives, are already in the MD. The estimated number of unclassified datasets available for inclusion in the MD is many times this. When unclassified, but limited and restricted datasets are included, the number is likely to be orders of magnitude more than the initial hypothesis.

2. Background

NASA has established an on-line multidisciplinary data information service known as the Master Directory (MD). The Master Directory, developed by the National Space Science Data Center (NSSDC) at NASA/Goddard Space Flight Center, is designed to provide brief, high-level descriptive information about datasets, so that users may quickly determine what data and information they need for their research. The MD does not contain the actual datasets but serves as a tool for the scientific researcher to locate datasets of interest. The MD includes brief descriptions of the contents of the dataset, as well as the location and point-of-contact to obtain off-line data and relevant publications. The MD also contains supplementary information, such as, data center/archive descriptions, campaign/project descriptions, and spacecraft and sensor descriptions (see Figure 1). Appendix A provides specific information on how to access the MD.

The MD provides direct links to many on-line data centers (e.g., the USGS Global Land Information System (GLIS)) where the researcher may obtain more detailed information about the data and perhaps be able to directly access data or order data on-line. The user searches entries in the MD through the use of controlled keywords (or valids) for such items as discipline, location, data center, and parameter (e.g., ozone). The user can also search for general keywords which are not controlled (e.g., halogens). Figures 2 through 7 illustrate a sample session using the MD to access information on a dataset from the US Army Engineering Topographic Center (placed into the MD through this study).

The NASA MD has been adopted by the Interagency Working Group on Data Management for Global Change (IWGDMGC) as the centralized directory to...
November 12, 1992

Roy Jenne
Senior Scientist
National Center for Atmospheric Research
PO Box 3000
Boulder, CO 80307

Mr. Jenne;

Many thanks for your comments on the effort to open CIA archives and resources to environmental researchers. Your comments provided a valuable perspective for my November Environment Today article on the subject.

Enclosed is a copy of the issue; the article begins on page 3.

Let me know what you think of the article or others in the issue. We'd be happy to publish your letter to the editor on issues you would like to address.

Thanks again for your insights.

Sincerely,

Tom Barron
Associate Editor
SPYING ON EARTH

CIA archives, spysats tackle new mission

By Tom Barron

For environmental scientists, access to Pentagon spy archives may provide important clues — not to how the U.S. won the cold war, but to the extent and pace of global environmental changes.

And some argue that with a diminished security threat, the intelligence community's $100 billion investment in reconnaissance capability should be applied to a new mission: using spy satellites to scrutinize 'green' targets.

Proposals to use existing intelligence data and collection capability for environmental research have thus far been stymied by 'secret' stamp marks and a reluctance by Pentagon officials to display hard-earned intelligence data it has squirreled away. But growing endorsements among the scientific community, the involvement of the prestigious Council on Foreign Relations, and spearheading by Sen. Al Gore's Science, Space and Technology subcommittee, have steadily overcome resistance to the idea.

The Bush administration weighed in last June with a directive to Defense Department officials to start taking the proposal seriously. Its backers may hit paydirt in a series of upcoming meetings between CIA officials and a team of environmental scientists with newly bestowed security clearances. The group will pour over intelligence archives and determine which of them, if any, hold promise for environmental research.

A change of leadership following the November elections could also provide a big boost for the initiative, congressional observers say.

Valuable records

In data collected by spy satellites, ships, submarines and reconnaissance planes, gathered over a 30-year period of busy Cold War espionage and scattered among several Defense Department archives, scientists are hoping to uncover valuable measurements of atmospheric and other ecological conditions that could broaden the baseline for studying global warming. The archives could also yield data on polar ice thickness, sea temperatures, deforestation, desertification...
data we’ll find useful,” says Roy Jenne, senior scientist with the National Center for Atmospheric Research (NCAR) and one of the 25 committee members who will review CIA data. But if quality environmental data can be teased from intelligence archives, it could vastly broaden the range of baseline data on which many global change predictions are based, Jenne says.

“The data that we’ve begun collecting over the past decade or so provide a good start, but you need a good, long look [at global phenomena] to account for normal fluctuations,” he says. “Ideally, these archives will provide that.”

But a hypothesis in need of testing has been delayed by a tight-knit intelligence community fiercely protective of its data — and concerned about revealing its capabilities and techniques along with any information. A meeting between CIA officials and scientists in April that laid the groundwork for current negotiations was characterized by coy exchanges over what kinds of data exist in government archives.

“They were basically saying, ‘tell us what you want and we’ll tell you whether we have it,’” recounts Ken Keller, a senior fellow with the New York-based Council on Foreign Relations, which convened the meeting. “Of course, the scientists’ response was, ‘tell us what you have and we’ll tell you whether we want it,’” he says.

An agreement in principle was nevertheless reached to continue exploring the proposal. The June presidential directive, which ordered agency heads to improve access to environmental data, provided a further boost, as did the U.S. emphasis at the June Earth Summit on the need for more study of global warming before following Europe’s prescription for bold action.

“In light of the U.S. position in Rio — that more study of global change issues are needed — this initiative is very consistent with the U.S. stance and would further that aim,” Keller notes.

The more ambitious proposal to use spy satellites and the like for ongoing environmental research has opened its own Pandora’s box of policy questions, Keller argues.

“If you have a certain amount of money with which to gather environmental information, do you want to put it in the hands of an intelligence community that is being scaled back on the heels of the Cold War? Could it be done more efficiently by NASA, National Oceanic and Air Administration (NOAA) or other agencies? These are questions that still need to be decided,” Keller says.

Also at issue is the value of environmental information that can be gathered by spy satellites. Their narrow field of vision, likened by some as viewing the planet ‘through a soda straw,’ is a sharp contrast to the broader, panoramic satellite surveys in the past that have tracked atmospher-
Dr. Gordon MacDonald
Professor, International Relations/Pacific Studies
and Director, Environmental Policy Program
Institute on Global Conflict and Cooperation
University of California, San Diego
9500 Gilman Drive
La Jolla, California 92037

Dear Dr. MacDonald:

Thank you for bringing to my attention that National Technical Means (NTM) coverage of the Midwest flood areas should be preserved. Given the extreme and unique nature of this event, I have no doubt that the information we acquired for the disaster relief effort will be useful for analysis in support of important policy decisions.

Upon receipt of your letter, I took steps to avoid the otherwise routine destruction of the digital data. I assure you that relevant data are being preserved. With the exception of a small portion of the early coverage, we have a complete set that will be saved for an indefinite period of time.

I expect that the Department of Interior, and possibly other entities such as state agencies, would be a major user of the data that were acquired of flood areas. As an initial step, I have directed that elements of the Intelligence Community work to ensure that appropriate officials at Interior have a thorough understanding of our classified data and that we develop the means to apply those data in support of future policy decisions.

Sincerely,

[Signature]
R. James Woolsey
Director of Central Intelligence

cc: Secretary, Department of Interior
CIA attracts protesters, job-seekers

Reaction mixed on agency’s CU visit

By KEVIN BLOCKER
Colorado Daily Staff Writer

Although there was opposition to the CIA’s presence on the CU campus Monday, of all the corporations that gathered in the engineering center for CU’s Career Week, the agency took home the most resumes and lists of names.

CIA representative John Lucero left the job fair after half the day, because of time constraints and the fear that the peaceful protest might escalate, according to CU Spokeswoman Pauline Hale.

During the morning hours, the agency garnered more attention than the other corporations present. After Lucero left, the engineering representatives collected about 60 names of students requesting more information about the CIA.

According to CU police estimates, about 30 protesters, one-fifth the number of those who protested in 1986 when the agency was last on campus, gathered during the day to oppose the CIA’s presence.

“They’re like a virus,” said protester and Boulder resident Jim Nelson. “Viruses are always changing and adapting. They’re here with all of these other corporations to give the appearance of being a legitimate organization.”

The CIA was on the CU campus as part of the university’s Career Week, which began Monday and continues through Wednesday. The CIA was scheduled to be on the CU campus for one day.

Before Career Week participants and engineering stu-

[TURN TO PAGE 5]

Protesters approach the CIA’s recruitment booth at the CU Engineering Center on campus Monday. They removed the agency’s pamphlets and the tablecloth in the foreground.

Not associated with our ETF Cota meeting.
NATION & WORLD

TUESDAY, OCTOBER 9, 2001

DAILY Camera

Strikes at least a partial success

Technology helps U.S. troops identify targets

But Pentagon officials say case of 'leadership
targets' less clear

By Robert Burns
Associated Press

WASHINGTON — The U.S.-led bombing campaign in Afghani
stan was back on Monday in a second round of air
and sea-launched attacks, has been at least modestly success
ful, according to its first set of tar
gets, senior Pentagon officials said Monday.

Five long-range bombers - a pair of B-2 stealth bombers flying from Whiteman Air Force Base, Mo., and three B
1B's from the Indian Ocean island of Diego Garcia - joined 10 strike planes launched from aircraft carriers in the Arabian Sea in sending bombs and mis
siles at air defense and other military targets across Afghani
stan.

The Pentagon initially said 10 bombers were involved but later corrected the number to five. Officials later said that all the aircraft returned safely after the missions.

Two U.S. Navy ships, the de
stroyers USS John Paul Jones and USS McPaul, and one sub
marine launched a total of 15 Tomahawk cruise missiles.

In Sunday's opening assault, 15 bombers and 25 carrier
based strike aircraft partici
pated, which were among the vessels that fired 50 cruise missiles in Sunday's at
acks, but none was involved.

U.S. officials said.

Officials said early indica
tions were that the campaign against air defense systems and airfields were at least partially success
ful, although it was less clear in the case of "leadership targets" - leaders of both the al-Qaeda terrorist network and the Talib
an militia that harbors the ter
rorists.

In revealing more details about the first salvo of mis
siles and bombs, Air Force Gen. Richard Myers, chairman of the Joint Chiefs of Staff, conten
tioned that the number of nu
mbers fired and the number of targets hit are not the best measure of success for Presi
dent Bush's campaign against terrorism.

"In this kind of warfare, against this kind of enemy, the
test of our resolve, as far as I'm concerned, my opinion, will not neces
sarily be in numbers of the targets," Myers said at a joint news con
ference with Defense Secretary Donald H. Rumsfeld. Success depends on "eliminating the infra
til, aiding opposition groups, feeding displaced Afghans and demonstrat
ing that harboring and supporting terrorists will not go unpun
ished," he said.

Rumsfeld made a similar point.

"There is no silver bullet," he said. "The cruise missiles and
bombers are not going to solve this problem. We know that. What they can do is to contribu
tate by adding pressure,
making life more difficult, raising the stakes for the terrorists and those that are supporting the terrorists, draining their fi
nances and creating an envi
ronment that is inhospitable to
the people that are threatening the world.

Though the Taliban have only a rudimentary mili
tary, the U.S.-led bombing is not aimed mainly at those forces, he said.

"It's unlikely that the air
strikes will rock the Taliban back on their heels," Rumsfeld said.

The weather remains a problem. We're talking small, scattered, targets. Very often only human intelligence can tell us who is in a building.

But he said that not knowing whether they could be caught by spy imagery could keep U.S. targets in hiding.

"For them to move, to use their military forces, to occupy any facility exposes them to the risk we'll detect it," he said.

U.S. officials generally decline to discuss intelligence gathering capabilities, but some of the satellite and aircraft available include:

Lacrosse/Imagery high-resolution satellites: The most recent version was thought to have been launched Aug. 17, 2000, by a Titan missile. It is considered particularly useful in cloudy weather.

Keyhole electro-optical imaging satellite: The most recent version was believed to have been launched Friday by a Titan IVB rocket from Vandenberg Air Force Base in California. The satellite offers high resolution images, capable of picking out objects as small as four inches.

GMAT-500 Left View: A long-endurance surveillance aircraft that has been flying since 1989. It is able to stay aloft up to 48 hours without landing or refueling and has a range of 500 miles. The craft is 16.4 feet long with a 33.3-foot wingspan.

RQ-1 Predator: An evolution of the GNAT, this aircraft has been used extensively in support of NATO forces in the Balkans. An all-weather craft, it carries two color video cameras and can remain airborne for more than 40 hours. It provides information via satellites and data links and engines. The Pentagon's newest buy is the 510.

Hunter UAV: An ancestor of the Predator, the Hunter system has been plagued with problems and criticized by congressional investigators. Prototypes crashed several times and had problems with computer software, data links and engines. When the Pentagon stopped buying them in 1996, the Hunter was 25 feet long with a 29-foot wingspan.

RQ-2 Pioneer: The plane was first deployed on the battlefields of the logistics support this year. It was used in Operation Desert Shield/Desert Storm, flying more than 30 missions to aid in target selection, reconnaissance for advance troop movements and aerial surveillance. The system is to be phased out as the Navy Tactical UAV system enters the inventory. It is 9 feet, 7 inches long with a wingspan of 17 feet, 1 inch.

Rioters in Pakistan protest U.S. action

One man dead

Northerm alliance

Northern alliance

Re: Imran
20 November 1992
G011-L-015

Dear Environmental Task Force Scientist:

This packet contains important security information regarding your future foreign travel and contacts. A wallet sized card containing security reminders and helpful Government/MITRE contact information is also included for your convenience. We hope that you will keep this card with you at all times. Upon your request, we will provide additional information to fit your particular situations.

Your Foreign Travel Notification reports can be mailed to the below address. If you have any security questions, please call the security hotline 1-800-825-9856 listed on your contact card. Remember, when in doubt, call me.

Very truly yours,

Gail J. Carmichael
Sr. Special Security Officer

MITRE

Security Assistance
- Foreign travel
- Personal status changes
- Association with Foreign Nationals
- Telephone and Computer Security

When in Doubt Call
Security Hotline -
Gail Carmichael,
1-800-825-9856
(Voice Mail after 5:00pm EST)

Note: It can cause trouble if people know that you have seen classified info.
- R. Jones
Archive Indexing Task

Experiment #5

Dr. Nicholas Gramenopoulos

8 September 1993

MITRE
Statement of Problem

How to find the images in the archives covering a geographic point or area

Solution

-- Computer databases listing images and geographic corner points per frame
-- User queries databases
-- Computer search identifies the frames expected to contain geographic points or areas

DIA has National Area Coverage Data File (NACDF), consists of:

-- Area Coverage File (ACF) -- fully indexed
-- Mission Accountability File (MAF) -- partially indexed
-- Aerial Mission Photo Index (AMPHI) -- fully indexed
-- Other files
Statement of Problem (Concluded)

- Film inventories
  - AMPHI -- 168 K cans, 24.4 M frames
  - MAF -- 126 K cans -- practically unusable without indexing
  - Unindexed film -- 36 K cans -- Little computerized data

- Geographic indexing of images
  - Simple for satellite imagery -- known, stable orbits, good attitude control, electronic data
  - Difficult for aircraft imagery
    - Ground track can be anywhere, usually serpentine
    - Aircraft altitude variable during flight
    - Cameras can be turned on & off

- Indexing involves correlating imagery in a frame with map information
  - Depends on mission information -- ground track, etc
Task Objectives

- Determine the value of imagery for environmental applications
- Evaluate archival system performance in support of environmental applications
- Determine feasibility & effort to index unindexed & partially indexed imagery
- Define needed upgrades to indexing & query systems
- Formulate plan to index valuable imagery

Did this in FY 93. And task continues till Nov.
Testing of Archive System

- NACDF was used extensively to identify imagery for the Land Use (#4) and Land Cover (#5) experiments
- Results were accurate -- some sites were located just beyond some image edges
- Image search operations -- labor intensive
- Modernization and improvements in NACDF needed for environmental applications
  -- User interface
  -- Additional information in database
Indexing Tests

- Partially indexed film -- MAF

  -- In theory indexed to 1 square degree,
  -- based on the square degrees traversed by the ground track
  of the entire mission
  -- a large mission may traverse four countries and produce 30
  cans of film -- no indication of relationships between square
  degrees & cans of film

  -- Indexing is done incrementally in linear or arc segments
  from the beginning of the track
  -- First & last frames of a segment are indexed manually with maps
  -- Intermediate frames are indexed by interpolation

  -- Effort required to index a mission varies significantly, depends on:
    -- Terrain, landmarks
    -- Resolution, area covered & scale of imagery
    -- Familiarity of photointerpreter
    -- Mission information available
    -- Age of imagery compared to current maps

  etc
Results

- Conducted indexing of MAF film from:
  -- Sudan, Egypt & Israel, Brazil

- Examined MAF film for indexing difficulty from:
  -- China, Italy, New Zealand, Ghana, Chile

- Time required to index a mission highly variable
  -- Older film more difficult due to missing information
  -- Deserts & tropical forests more difficult than industrialized countries
  -- Typical times -- 7.9 to 35.4 hrs per mission, for current missions
  -- Many days to months to index old (1944) MAF missions
  -- Some film cannot be indexed for various reasons

- ACF imagery very valuable for environmental applications
Recommendations

I Have to be selective in indexing imagery for general environmental applications

-- Pilot program -- survey film inventory by sampling & previewing
-- create database characterizing film by mission
-- use database to make selection of most valuable film to be indexed

II Index selected missions for general use

-- Mission selection criteria -- value of imagery to types of environmental applications, cost effective indexing operations

III Index film selectively to support specific experiments or investigations

IV Improvements to indexing system & operations to improve accuracy & productivity

V Query system improvements -- minor to user data access center
NASA Master Directory

Study (#2)

James L. Green
NASA/Goddard Space Flight Center
Greenbelt, Maryland 20771

September 1993

This is about data. 4-7

+ classified
Objective

- To make the location and basic characteristics of relevant unclassified U.S. Government National Security Community data known to the Earth (and space) science research community
Background

• What is the Master Directory?
  - An online multidisciplinary information system for rapid and efficient identification, location, and overview of information on data sets of interest to the Earth and space science research community
  - First step in locating data that may be of potential scientific interest
  - Automated network links to other systems having more detailed information and possible additional capabilities

• Features of the Master Directory
  - Open, online free access
  - Interdisciplinary
  - Multiple agency participation
  - International participation

• Supplementary information through the Master Directory
  - Data center/archive descriptions
  - Campaign/project descriptions
  - Spacecraft/platform descriptions
  - Sensor/instrument descriptions
Background (Cont’d.)

• Directory Interchange Format (DIF) - Exchange File for Directory Information
  - A standard developed by the Catalog Interoperability Working Group for entering information into the Master Directory

• DIF Content:
  - Entry_ID
  - Descriptive Title
  - Brief Summary/Abstract
  - Data Source Name (Spacecraft, Platform, etc.)
  - Sensor Name
  - Start/Stop Date
  - Storage Medium
  - Discipline/Subdiscipline
  - Parameters Measured
  - Location Name
  - Latitude/Longitude Coverage
  - Bibliographic References
  - Name, Address, Phone, etc.
  - Data Center Name
  - Quality
Approach

- Collected data set information from briefings given at the ETF meetings
- Compared this information with the current contents of the Master Directory
- Prioritized data set information based on relevance to Earth science
- Made contact with organization reps and field reps to collect more information about new data sets for the directory
- Obtained information needed to create Directory Interchange Format entries (DIFs)
- Registered the DIFs into the Master Directory
- Currently monitoring activity of the newly registered data sets to assess interest
Results: DIF Development

• DIFs related to ETF/MD study
  - 7 created directly from ETF/MD Study and registered into the MD
  - 35 identified and are in review
  - 50 DoD-related DIFs that are publicly available are already registered in MD

• Navy Operations (Mr. Robert Winokur, Technical Director, Office of the Oceanographer of the Navy). Letters have been sent to:
  - Naval Oceanographic Office (NAVOCEANO)
  - Naval Polar Oceanography Center
  - Arctic Submarine Laboratory
  - Fleet Numerical Oceanography Center (FNOC)

• Ballistic Missile Defense Organization (BMDO)/Naval Research Lab (NRL)
  - Backgrounds Data Center (BDC at NRL) will provide information for five DIFs from the Infrared Backgrounds Signature Survey (IBSS) data archived at the BDC. DIFs may be developed for a number of other BDC data sets (TBD).
Results: DIF Development (Cont’d.)

- **Defense Mapping Agency** (Dr. Kenneth Daugherty)
  - Many DMA products, although unclassified, are restricted to DoD or DoD-sponsored researchers and may not be available for the Master Directory
  - Many unrestricted products available from the U.S. Geological Survey and NOAA’s Geophysical Data Center have DIFs registered in the MD

- **Army (Ms. Sheryl Morris)**
  - U.S. Army Topographic Engineering Center (TEC)
    - DIFs registered for three data sets:
      TEC Radiation/Meteorology Data Base
      Hyperspectral Signatures (400-2500 nm) of soils, vegetation, minerals and rocks
      Thermal Infrared Reflectance Spectra of soils, rocks, minerals and man-made materials

- **Air Force**
  - Environmental Technical Applications Center (ETAC)
    - 30 DIFs under development
Results: DIF Development (Cont’d.)

- **Defense Nuclear Agency (Dr. David Auton)**
  - Kuwait Data Archive (KuDA) at NCAR archives geophysical and meteorological data related to the Kuwait oil fires during the Persian Gulf War
  - DIFs have been developed and registered in the MD for aircraft measurements, ground-based measurements, model results and satellite imagery available from KuDA

- **Department of Energy (Dr. Ari Patrinos)**
  - New DIFs TBD. Many DIFs for data sets archived with the Carbon Dioxide Analysis Center (CDIAC) are in the MD

- **NASA (Mr. Douglas Norton)**
  - All archived NASA mission information already in Master Directory
  - Master Directory does not register data from missions not yet launched (see NASA Master Catalog)
Results: Related Accomplishments

- Feasibility of an ICMD
  - A cooperating node for the DoD and Intelligence community is technically feasible
  - Outstanding issues:
    - Implementation
    - Location(s)
    - Operating mode
    - Security

- SERDP Coordination
  - CIESIN/ERIM effort to create an Arctic database has identified some unclassified DoD data sets
  - The MD study and this effort are coordinating to avoid duplication of effort in DIF development

- IWGDMGC Catalog Subgroup participation
Conclusions

• The MD is an ideal vehicle for providing access to information about DoD/Intelligence community unclassified Earth science data

• The DIF is an adequate standard to describe DoD/IC data sets, providing significant information

• Access to many unclassified data sets is restricted. Considerable amounts of potentially valuable data are labeled as restricted and available on a need-to-know basis only.

• Many DoD laboratories and data centers are reluctant to advertise that they hold data of interest because of inadequate resources and/or facilities to engage in widespread data distribution, should their data holdings become public knowledge.
The U.S. Army Topographic Engineering Center (USATEC) maintains the TEC Radiation/Meteorology Data Base which consists of surface radiation and meteorological parameters collected using various ground-based sensors situated on 20-50 foot towers at four sites: (1) the TEC site at Ft. Belvoir, VA (which consists of a large set of data from 1983-1989 and a smaller set from 1992 to the present); (2) Jornada Experimental Range (USDA) site, Las Cruces, NM. This site is located in the Chihuahuan Desert and is a designated ISLSCP/NASA International site for Study of Arid Lands. Data was collected from 1986-1991; (3) the Yuma, AZ Marine Corps Air Station site located in the Lower Sonoran Desert. Data was collected from 1988 to the present. The Yuma site is also a USGS Desert Winds site; and (4) Owens Lake, CA site located in the Sequoia National Forest. Data at this site was collected from 1992 to the present. All of the data from each of the Western U.S. sites have 6, 12, and 60 minute records. The Virginia site has 30 minute records. The data were taken at fixed sites and were averaged over 0.3 meter circles at the western sites and 2.5 meter ovals at the Virginia site. The data collected consists of wind speed and direction, incoming and outgoing short-wave, long-wave and diffuse radiation, surface and soil temperature, air temperature, humidity, precipitation, soil moisture and heat flux, barometric pressure, and sand flux (for the desert sites). The data were processed using an HP 9000/520 in HP BASIC and are being migrated to a Sun Sparcstation 1+ using UNIX. Data from the western sites are received at a Gateway 2000 PC via direct satellite link and transferred to the Sun.

End_Group
Group: Data_Center
  * Data_Center_Name: USATEC > U.S. Army Topographic Engineering Center
  Dataset_ID: JORNADA_SITE
  Dataset_ID: OWENS_LAKE_SITE
  Dataset_ID: TEC_SITE (LARGE SET)
  Dataset_ID: TEC_SITE (SMALL SET)
  Dataset_ID: YUMA_SITE
Group: Data_Center_Contact
  Last_Name: KRUSINGER
  First_Name: ALAN
  Middle_Name: E.
Group: Address
  U.S. Army Topographic Engineering Center
  USATEC-RI-RSD
  Fort Belvoir, VA 22060-5546
  USA
End_Group
Phone: 703-355-3138
End_Group
End_Group
Group: Investigator
  Last_Name: KRUSINGER
  First_Name: ALAN
  Middle_Name: E.
Group: Address
  U.S. Army Topographic Engineering Center