

# Scientific, Environmental, and Political Context Leading to Concept of a Climate Diagnostics Workshop

Robert W. Reeves

*CPC Climate Diagnostics and Prediction Workshop  
Denver, Colorado  
October 2015*

# Academic Context-

## Climate's Growing Importance

Interest in climate spurred in the 1960s and early 1970s

- Concern about man's influence
- Modeling the effect of CO<sub>2</sub> doubling (M & W, 1967)
- GARP proposed by WMO and ICSU 1967
- Rand program on climate modeling - NSF \$ until 1970
- 1971 International SMIC Stockholm
- 1972 Brown Univ Conf of geologists
- Oct publication, Dec letter to Pres. Nixon

# The Present Interglacial, How and When Will it End? January 1972, Providence, RI.

## Organizers

George Kukla, Czechoslovakian Academy of Sciences, Prague

Robert Matthews, Brown University, Providence

A conference summary appeared in *Science* in October 1972.



BROWN UNIVERSITY Providence, Rhode Island • 02912

DEPARTMENT OF GEOLOGICAL SCIENCES

(401) 863-2240

December 3, 1972

The President  
The White House  
Washington, D. C.

Dear Mr. President:

Aware of your deep concern with the future of the world, we feel obliged to inform you on the results of the scientific conference held here recently. The conference dealt with the past and future changes of climate and was attended by 42 top American and European investigators. We enclose the summary report published in Science and further publications are forthcoming in Quaternary Research.

The main conclusion of the meeting was that a global deterioration of climate, by order of magnitude larger than any hitherto experienced by civilized mankind, is a very real possibility and indeed may be due very soon. The cooling has natural cause and falls within the rank of processes which produced the last ice age. This is a surprising result based largely on recent studies of deep sea sediments.

Existing data still do not allow forecast of the precise timing of the predicted development, nor the assessment of the man's interference with the natural trends. It could not be excluded however that the cooling now under way in the Northern Hemisphere is the start of the expected shift. The present rate of the cooling seems fast enough to bring glacial temperatures in about a century, if continuing at the present pace.

The practical consequences which might be brought by such developments to existing social institutions are among others:

- 1) Substantially lowered food production due to the shorter growing seasons and changed rain distribution in the main grain producing belts of the world, with Eastern Europe and Central Asia to be first affected.
- 2) Increased frequency and amplitude of extreme weather anomalies such as those bringing floods, snowstorms, killing frosts etc.

Mr. President

- 2 -

December 3, 1972

With the efficient help of the world leaders, the research could be effectively organized, and could possibly find the answers to the menace. We hope that your Administration will take decisive steps in this direction as it did with other serious international problems in the past. Meantime however it seems reasonable to prepare the agriculture and industry for possible alternatives and to form reserves.

It might also be useful for Administration to take into account that the Soviet Union, with large scientific teams monitoring the climate change in Arctic and Siberia, may already be considering these aspects in its international moves.

With best regards,

  
George J. Kukla  
Lamont-Doherty Geological Observatory

R. K. Matthews, Chairman  
Department of Geological Sciences

GJK/RKM:mc  
Enclosure



DEPARTMENT OF STATE  
Washington, D.C. 20520  
BUREAU OF INTERNATIONAL SCIENTIFIC  
AND TECHNOLOGICAL AFFAIRS

JAN 9 1973

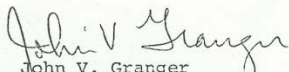
Dr. George J. Kukla and  
Dr. R. K. Matthews  
Department of Geological Sciences  
Brown University  
Providence, Rhode Island 02912

Dear Drs. Kukla and Matthews,

I am replying to your letter of December 3 to the President calling attention to the conclusions of the conference on the Present Interglacial held last January at Brown University.

I have requested that your letter be circulated to the members of the Interdepartmental Committee for Atmospheric Sciences (ICAS) for review and appropriate action. As you know, this is the highest level interagency body within the US Government concerned with the atmospheric sciences.

Sincerely,

  
John V. Granger  
Acting Director



DEPARTMENT OF STATE  
Washington, D.C. 20520  
BUREAU OF INTERNATIONAL SCIENTIFIC  
AND TECHNOLOGICAL AFFAIRS

February 28, 1973

Dr. George J. Kukla and  
Dr. R. K. Matthews  
Department of Geological Sciences  
Brown University  
Providence, Rhode Island 02912

Dear Drs. Kukla and Matthews:

In my letter to you of January 3, I said that I was referring your letter to the President on the Present Interglacial to the Interagency Committee for Atmospheric Sciences.

ICAS is now seized of the matter. We shall be writing you later after we reach some conclusions about how we should address the problems you raised.

Please consider this an acknowledgement of your letters to Mr. Pollack on the same subject.

Sincerely,

  
John V. Granger  
Deputy Director

**The Interdepartmental  
Committee for Atmospheric  
Sciences established an ad hoc  
Panel on the Present Interglacial  
to respond to the  
Kukla/Mathews letter.**

Members of the ad hoc Panel

*Dr. David M. Hirschfield (Chair)*  
Department of Agriculture

*Mr. Joseph O. Fletcher*  
National Science Foundation

*Dr. J. Murray Mitchell, Jr.*  
National Oceanic and  
Atmospheric Administration

*Col. John S. Perry*  
Department of Defense

Consultant

*Mr. William R. Gasser*  
Department of Agriculture



## DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

1400 WILSON BOULEVARD  
ARLINGTON, VIRGINIA 22209

5 June 1973

*RKM*

Professor John Imbrie  
Brown University  
Providence, Rhode Island 02912

Dear John:

I'm writing to ask a favor.

As you know, the Interdepartmental Committee on Atmospheric Sciences formed an ad hoc group to respond to the letter recently broadcast by Bob Matthews and George Kukla. The members of this group, myself included, decided to broaden the scope of its studies a bit to include climate variations on many scales, not necessarily limited to the return of the glaciers. I attach a copy of our revised charter.

Our Chairman has asked each of the members to prepare one section of the final report - mine is the area labelled "1.2" on the attached Charter. Could you supply any raw material for this? I could use pointers to useful references, reprints, ideas of your own, etc. Since the Chairman would like a draft by 13 July, I would need inputs by the end of this month.

Thanks.

Sincerely,

*J.S.P.*  
John S. Perry  
Colonel, USAF  
Program Manager  
Information Processing Techniques

Attachment

*George*  
*Back to RKM by*  
*June 22*

4/1973

DRAFT  
CHARTER  
for  
ICAS AD HOC PANEL ON THE PRESENT INTERGLACIAL

1. Purpose

This panel is hereby established to review the status of Federal awareness, understanding, preparation and research concerning the contingency of a transition from the present interglacial period to a new glacial period. This subject has been emphasized by the scientific conference on "The Present Interglacial, How and When Will It End?" which was held at Brown University on January 26 and 27, 1972. Attention to the subject of that conference has been urged upon the President and other Federal Officials in late 1972 and early 1973 by letters from Professors George J. Kukla of the Czechoslovakian Academy of Science, then visiting at the Lamont-Doherty Geological Observatory, and R. K. Matthews of the Department of Geological Sciences at Brown University.

To accomplish its purpose, the panel is charged to evaluate, as competently as now possible, and report to ICAS on the following topics:

1.1. Existing information concerning the prediction, or the possibility of prediction, of the time and manner of the termination of the present interglacial period by the onset of a new glacial period.

*1.2*  
1.2. Federal activities in research and development to improve the state of the above knowledge.

*1.3*  
1.3. Identification and description of adverse climatic effects, such as sustained extreme weather anomalies, changed rain distribution, and shortened growing seasons which would be likely to occur during the course of a transition from an interglacial to a glacial period, and which might have to be taken into account in any Federal efforts to ameliorate socio-economic and international disturbances resulting from such a transition.

*1.4*  
1.4. Identification, description and likelihood of recurrence of climatic variations for which there is historical evidence of significant socio-economic and international implications during the course of the present interglacial period.

*1.5*  
1.5. Existing and potential research and development on the possible mitigation of glacial climate trends.

2. Report

The Panel is expected to transmit its report, as requested in Item 1, to ICAS by September 30, 1973. If unforeseen circumstances delay this transmission, this fact should be coordinated with ICAS.

**Ad hoc Panel Assembling Input for Report**

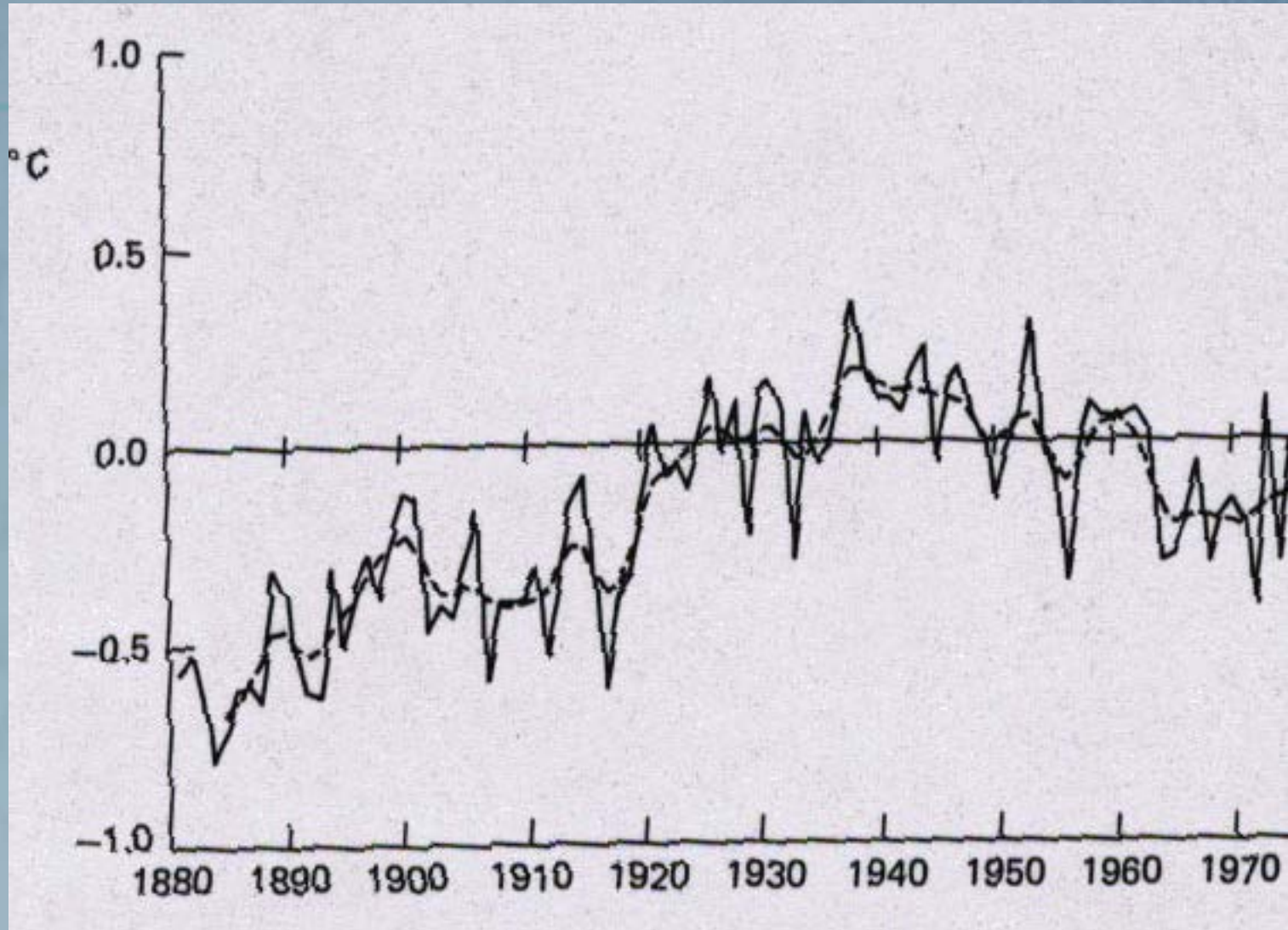
**Climate Interests See An Opportunity**

**Joe Fletcher of NSF Proactive – Developing Initiative**



## Environmental Context-

- ENSO 1972/73
- Crop failures in USSR, China, Eastern Europe, Latin America and India.
- Drought in Soviet Union resulting in 12% shortfall in grain production and led to USSR purchase of wheat from US and Canada, wiping out the US surpluses
- Collapse of Peruvian anchovy harvest in late '72 and early '73
- Anomalously low precip in Pacific NW depleted water reservoir storage
- 1973 Sahel Drought



Northern hemisphere mean annual surface temperature variations in ° C: deviations from the 1946-1960 mean (adapted from Jones and Wigley, 1980).

ICAS 18b-FY75

August 1974

## Report of The Ad Hoc Panel on The Present Interglacial

*Interdepartmental Committee  
for  
Atmospheric Sciences*

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY

Science and Technology Policy Office • National Science Foundation

*“... the Panel saw fit to submit a detailed proposal as a separate part of this report under the title, “A National Program for the Study and Prediction of Climate Fluctuations and their Impact on Human Affairs”. In that separate document, the Panel has suggested a climate dynamics research and development program”*



**Draft Climate Program Proposal  
Submitted for Interagency Review**

**NOAA Objects to Panel Overstepping Its Charter**

**NOAA Lobbies for Leadership of Planning Effort**

**Joe Fletcher Accepts Position with NOAA**

THE WHITE HOUSE  
WASHINGTON


August 1, 1974

Dear Fred:

Changes in climate in recent years have resulted in unanticipated impacts on key national programs and policies. Concern has been expressed that recent changes may presage others. In order to assess the problem and to determine what concerted action ought to be undertaken, I have decided to establish a subcommittee on Climate Change.

I am requesting that the Department of Commerce take the lead and chair this new Subcommittee. I would appreciate your naming, the official of your Department who you think would best fulfill this responsibility. Names of representatives to work on the Subcommittee have been requested from the Departments of the Interior, Agriculture, State, and Transportation, the Office of Management and Budget, the National Aeronautics and Space Administration, the National Science Foundation and the Council on Environmental Quality. Norman Ross of the Domestic Council Staff will coordinate staffing responsibilities.

Sincerely,



Chairman  
Environmental Resources  
Committee

Honorable Frederick B. Dent  
Secretary of Commerce  
Washington, D. C. 20250

On August 1, 1974 the White House requested the Commerce Department to lead a new Subcommittee on Climate Change.

On August 16, Secretary Dent responded by naming NOAA Administrator Robert M. White as the Chairman of the Subcommittee.

# Spelling Out The Need For a Climate Program

- Siege of hot, dry weather in the Midwest in the summer of 1974
- Inadequate monsoon rains in southeast Asia and India in 1974
- The Sahel suffered 5 years of drought
- Mean temperatures in the higher latitudes of the Northern Hemisphere have dropped significantly since the 1940's. As a result of the high-latitude cooling the growing season in Great Britain has shortened by two weeks since 1950.
- Recommended a climate diagnostic center be established in 1976

## **A United States Climate Program**

**Domestic Council  
Environmental Resources Committee  
Subcommittee on Climate Change**

December 1974

NATIONAL SCIENCE FOUNDATION

WASHINGTON, D.C. 20550

OFFICE FOR CLIMATE DYNAMICS

November 12, 1974

Climate Clinic

The Office for Climate Dynamics, National Science Foundation together with the Environmental Research Laboratory of NOAA and the National Center for Atmospheric Research invites you to take part in a climate clinic. Its draft term of reference and background are described in the attachment.

The feasibility of the clinic depends upon contributions of real-time information on a range of climatic indices for the construction of a continuing record of the current state of the global environment. You are therefore requested to indicate as soon as possible to the leader of the Task Group 1, Dr. Jay Winston, Director, Meteorological Satellite Laboratory, NOAA/NESS, World Weather Building, Washington, D.C. 20233 (telephone (301) 763-8031), the nature of the information you [or one of your collaborators] could bring to the clinic.

Given an adequate response it is proposed to hold the clinic on December 11 and 12, at Boulder, Colorado. Block reservations will be made at the Roadway Inn, 5397 Table Mesa Drive, Boulder, Colorado 80303 (303) 499-4422) for participants; it is hoped that their expenses can be paid by their organizations.\*

The draft agenda for the meeting is as follows:

December 11: Place-Environmental Research Laboratory  
Presentation of data (This will be made more definite when the replies are received from the participants).

afternoon: Discussion and appraisal of data presented.

December 12: Place-National Center for Atmospheric Research  
Clinic terms of reference  
Improvement and expansion of representations

It is hoped this meeting will produce a sample product for consideration by a larger group addressing the wider problems of the climatic clinic and the diagnostic climate center.

  
Uwe Radok  
Acting Chief Scientist

\* Please let me know if this creates any difficulty for you.

CLIMATE CLINIC

Terms of Reference

1. The Climate Clinic represents a pilot experiment for a Diagnostic Climate Center and has the aims of
  - establishing the current state of the global atmosphere, ocean and ice
  - developing optimum methods of displaying, archiving, disseminating, and utilizing this global information
  - encouraging the monitoring of all climatic indices within technical reach
  - interpreting the meaning and significance of the new record in order to create an incontestable basis for synoptic climate analysis and forecasting
2. The Climate Clinic itself will not attempt any forecasting. Participants are free to do so provided they acknowledge the Clinic as source of their material and clearly state their individual responsibility for their predictions.
3. A steering committee to be created at the initial Clinic, will organize future meetings. Other committees may be created, at the desire of the membership, to take responsibility for the archiving and disseminating of the record and for the verification of any forecasts that may be derived from the record by individual participants.
4. Membership will be limited to individuals and groups monitoring the current state of the global environment. Others such as those concerned with new or more distant past records and others with scientific interest will be considered as observers.



# **Proceedings of the Zeroth Annual Climate Diagnostics Workshop**

NOAA Environmental Research Laboratories  
National Center for Atmospheric Research  
Boulder, CO  
December 11-12, 1974



# The National Climate Program

The first attempt to pass a bill on the national climate program was made in 1975.

The National Climate Program Act was passed in the House in September 1977 and reported out of the Senate in March 1978.

The implementation of the Act included the establishment of the National Climate Program Office to manage the interagency climate effort and the initiation of an experimental climate forecast center activity. The formation of the Climate Analysis Center followed.

# Summary

**Kukla-Mathews letter initiated response at the highest national level and energized the science agencies**

**Concepts of a national climate program and a diagnostics climate center developed concurrently**

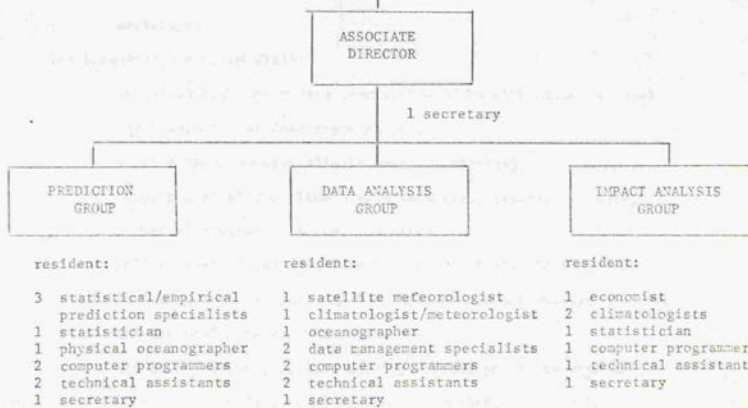
**Credit for the “idea” of a center probably belongs with more than one individual**

## Organizational Structure of the CLIMATE DIAGNOSTICS CENTER (CDC)

The CDC would take full advantage of existing facilities and in a minimal program will consist of fourteen professional scientists/researchers in residence, including the director and associate director. Of the fourteen, NOAA would be expected to provide seven positions, the NSF, three, the USDA, two, the NASA, one, and the DOI, one. Although the number of visiting scientists

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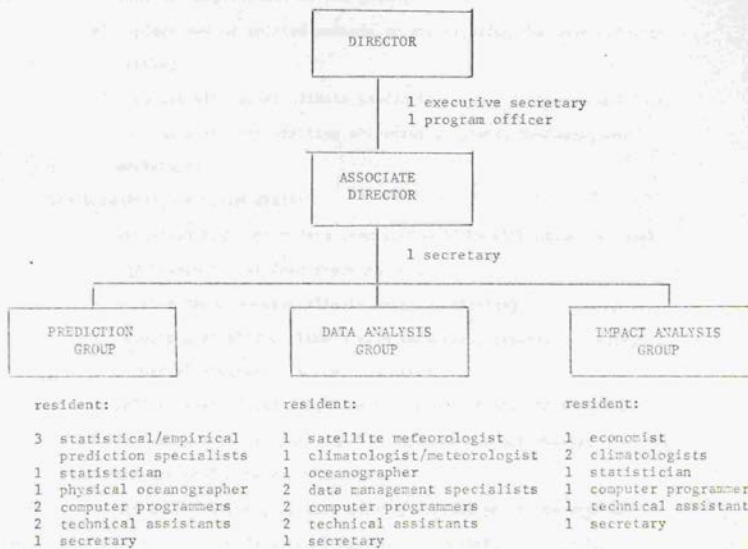
Bill Sprigg, on staff at NOAA headquarters, began developing ideas for a climate diagnostics center.

7 Technicians	GS 11/10/1	1 Technician	GS 10
1 Secretary	GS 5		
<b>Prediction</b>			
1 Climatologist	GS 14	1 Oceanographer	GS 13
1 Statistician	GS 13	1 Programmer	GS 13
1 Meteorologist	GS 12	1 Technician	GS 8
2 Programmers	GS 11/12		
1 Technician	GS 7		
24 positions		~\$ 730 K (50% overhead)	
data	\$ 20 K	8 positions	~\$ 260 K
computation	\$ 200 K		\$ 300 K
visitors	\$ 100 K		\$ 140 K
contracts	\$ 350 K		\$ 700 K
	1400 K		

Don Gilman of the NWS Extended Forecast Branch sketched some early ideas for a center at the request of Fred Shuman

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Bill Sprigg, on staff at NOAA headquarters, began developing ideas for a climate diagnostics center.

DIAGNOSTIC CENTER BUDGET & PERSONNEL

	1976	(Increments)	1977
<b>Management</b>			
1 Meteorologist	GS 16		
1 Administrative Asst.	GS 10		
1 Secretary	GS 7		1 Typist GS 4
<del>1 Typist</del>	<del>GS 4</del>		
<b>Diagnostics</b>			
1 Meteorologist	GS 15		
1 Physical Meteorologist	GS 14		1 Physical Oceanographer GS 14
2 Meteorologists	GS 13		1 Meteorologist GS 13
1 Statistical Meteorologist	GS 13		
1 Data Management Specialist	GS 14		
4 Programmers	GS 11/12/13/14		1 Programmer GS 11
4 Technicians	GS 7/7/8/9		1 Technician GS 10
1 Secretary	GS 5		
<b>Prediction</b>			
1 Climatologist	GS 14		1 Oceanographer GS 13
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Don Gilman of the NWS Extended Forecast Branch sketched some early ideas for a center at the request of Fred Shuman



U.S. DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
Rockville, Md. 20852

Date : July 7, 1977

Reply to Attn. of: EM5

To : Distribution

From : Edward S. Epstein, EM

Subject: Climate Diagnostics Project

Following our two meetings of the Management Team I have reached the conclusion that this project managed from my office is not workable. Therefore, I have asked the National Weather Service to assume responsibility for management and direction of the NOAA Climate Diagnostics Project, to be developed in FY 1979 into a Climate Diagnostics Center.

The responsibility for management of the Project is such that it warrants a GS-15 level Project Manager. The Project Manager will be part of and responsible to NWS, but responsive to the policies and program directions of the NOAA Climate Program Management Team. The relationship would be precisely the same as that for SEASAT in NOAA. I believe the Management Team-Research Team-Project Manager concept is valid and viable in this case. One of the first assignments of the Project Manager will be to update and revise the CDC PDP. Also, as indicated clearly in our deliberation over this issue in the past, several MLC's have considerable interest in the CDC and their resources are essential to the project's success. Hopefully, EDS, ERL and NMFS will join NWS and NESS in designating personnel to work on the project, perhaps in the CDC itself. To date, NWS has designated 6 people and NESS 2 people for the project.

With this memo, I am transferring responsibility for further direction of the project to George Cressman and NWS. My office will assist in making this transfer as smooth as possible while personnel actions are being taken to secure an appropriate Project Manager.

The distribution of resources discussed at our last Management Team meeting remain unchanged. When NWS has assumed control, funds now allocated to EM for diagnostics will be transferred to NWS for further allocation to the operating elements involved. This allocation will be on the basis of the Management Team recommendations and my decisions.

Distribution:

Dr. T. S. Austin, D  
Dr. G. P. Cressman, W  
Dr. W. N. Hess, R  
Mr. D. S. Johnson, S  
Mr. R. W. Schoning, F

As planning ensued, the center for climate diagnostics became a NOAA entity.

NOAA's line components vied for the management lead – NWS, EDS, ERL

Epstein's memo of July 1977 assigned responsibility to the NWS.

# Personal Interviews

- Tony Barnston
- Dave Gutzler
- Art Douglas
- John Roads
- Kelly Redmond
- Gene Rasmusson
- Norm Canfield
- Tim Barnett
- James O'Brien
- Ants Leetmaa
- Jay Winston
- Huug van den Dool
- Phil Arkin
- Robert M. White
- Jim Laver
- Dave Rodenhuis
- Bob Livezey
- Gene Bierly
- John Perry
- Larry Gates
- Steve Zebiak
- Mike Wallace
- Alan Hecht
- Jim Rasmussen
- Joe Fletcher
- Bill Sprigg
- Uwe Radok
- Ed Epstein

# Acknowledgments

- Don Gilman
- George Kukla
- Uwe Radok
- Doria Grimes
- NOAA Library Staff
- Shi-Keng Yang
- CPC Staff Members
- Chet Ropelewski
- Kris Harper
- CSD Staff



# CLIMATE PREDICTION CENTER

NATIONAL CENTERS FOR ENVIRONMENTAL PREDICTION • NATIONAL WEATHER SERVICE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

## REFLECTIONS ON 25 YEARS OF ANALYSIS, DIAGNOSIS, AND PREDICTION 1979–2004

8-14 Day Outlook

Climate Diagnostics and Prediction Workshop

30-Day and 90-Day Seasonal Outlook

ENSO Advisory

Ozone Winter Summary

Drought Outlook

Drought Advisory

Monthly Climate Bulletin

Seasonal Hurricane Outlook

UV Index Forecast

CDAS Reanalysis



# The New York Times

Founded in 1851

ADOLPH S. OCHS, Publisher 1896-1955  
 ARTHUR HAYS SULZBERGER, Publisher 1955-1961  
 ORVIL E. DRYFOOS, Publisher 1961-1963

ARTHUR OCHS SULZBERGER  
 Publisher

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 A. H. RASKIN, Assistant Editorial Page Editor

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 SEYMOUR TOPPING, Assistant Managing Editor

MAX FRANKEL, Sunday Editor

CLIFTON DANIEL, Associate Editor  
 HARRISON E. SALISBURY, Associate Editor  
 TOM WICKER, Associate Editor

## The Soviet Grain Deal

The dramatic confrontation this week in Washington between the Department of Agriculture and the major grain exporters leaves the question of responsibility for the Soviet grain deal ~~hazy~~ very much up in the air.

Depending upon whom one chooses to believe, the department either knew all about the huge Soviet grain purchases a year ago and chose to hide the facts from the public and the farmers, or the department was duped by the grain exporters who not only kept secret the Soviet purchases but even filed false reports to maintain their security. The contradictions are as vivid as anything in the conflicting testimony being heard about Watergate: like Watergate, the full facts about last year's Soviet grain purchases need to be brought out into the open.

While the public waits for this conflict of testimony to be resolved, the basic facts of the Soviet grain deal are now evident: A recent report of the General Accounting Office gave the essentials of the story of the colossal American grain giveaway to the Soviet Union, the inflationary effects of which have already cost this country hundreds of millions and perhaps even billions of dollars.

Early last summer, the Kremlin saw that a disastrous grain harvest would necessitate huge purchases abroad. Soviet buyers slipped into the United States and made secret purchase deals with a series of American grain exporters at low prices that did not reflect the real supply-demand situation. Only after the deals—amounting to well over a billion dollars—had been made did the marketplace suddenly discover the grain shortage and respond to it by bidding up wheat prices well over 50 per cent.

Simultaneously the Department of Agriculture behaved like a ~~sleepwalker~~ sleepwalker, disregarding available evidence that the public interest was being harmed.

Castro that he emulate Moscow in improving relations with Washington. From the United States' point of view as well, a rapprochement with Castro would be useful on both political and security grounds, very much in the spirit of and certainly as logical as the détente with the Soviet Union and the People's Republic of China.

## Due Process

"Executive privilege will not be invoked as to any testimony concerning possible criminal conduct or discussions of possible criminal conduct, in the matters under investigation.

"The truth about Watergate should be brought out—in an orderly way, recognizing that the safeguards of judicial procedure are designed to find the truth, not to hide the truth."

President Nixon, May 22, 1973

"The President's meetings and conversations in the White House have been recorded since the spring of 1971."

J. Fred Buzhardt, Special Presidential Counsel  
 July 16, 1973

"It is for the President, and only for the President, to weigh whether the incremental advantage that these tapes would give you in criminal proceedings justifies the serious and lasting hurt that disclosure of them would do to the confidentiality that is imperative to the effective functioning of the Presidency."

Charles Alan Wright, on behalf of President Nixon,  
 to Special Prosecutor Cox, July 23, 1973

"The tapes, which have been under my sole personal control, will remain so. None has been transcribed or made public and none will be."

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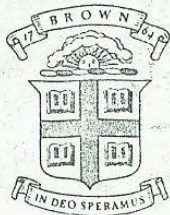
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**UNDERSTANDING  
CLIMATIC  
CHANGE**

**A Program for Action**

NATIONAL ACADEMY OF SCIENCES



BROWN UNIVERSITY Providence, Rhode Island • 02912

DEPARTMENT OF GEOLOGICAL SCIENCES

(401) 863-2240

December 3, 1972

The President  
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- 2) Increased frequency and amplitude of extreme weather anomalies such as those bringing floods, snowstorms, killing frosts etc.



Ollie Atkins Photographic Collection

Nixon visits China – February 1972



Corbis-Bettman/UPI

Summit Meeting in Moscow – May 1972

U.S. DEPARTMENT OF COMMERCE / National Oceanic and Atmospheric Administration

FEDERAL COORDINATOR FOR  
METEOROLOGICAL SERVICES  
AND SUPPORTING RESEARCH



**Federal Plan For  
National Climatic Services**

FCM 74-1

Washington, D.C.  
January 1974



## CLIMATE CLINIC

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3. A steering committee to be created at the initial Clinic, will organize future meetings. Other committees may be created, at the desire of the membership, to take responsibility for the archiving and disseminating of the record and for the verification of any forecasts that may be derived from the record by individual participants.
4. Membership will be limited to individuals and groups monitoring the current state of the global environment. Others such as those concerned with new or more distant past records and others with scientific interest will be considered as observers.

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
ENVIRONMENTAL RESEARCH LABORATORIES

Report on

PROTOTYPE CLIMATE DIAGNOSTICS WORKSHOP

at the

NOAA Environmental Research Laboratory  
and the National Center for Atmospheric Research

Boulder, Colorado

11-12 December 1974

Convener: J. O. Fletcher

## **Acknowledgments**

### **Support for Historical Studies**



# Climate-Related Events of International Consequence in the Early 1970s

## El Niño in 1972-1973

12% shortfall in Russian grain production in 1972.

Soviet decision to purchase abroad helped drive up food prices.

Collapse of Peruvian anchovy harvest in late 1972, early 1973.

Impacted world supplies of fertilizer, soybean market, and prices of all other protein feedstocks.