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\textsubscript{2} 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

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

Mr. President

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 range 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 extent 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.

Enclosure
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

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
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, have broadened 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,

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

Attachment

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).
“... 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
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
OFFICE FOR CLIMATE DYNAMICS
WASHINGTON, D.C.
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.

Uche Rakor  
Acting Chief Scientist

* Please let me know if this creates any difficulty for you.
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
Bill Sprigg, on staff at NOAA headquarters, began developing ideas for a climate diagnostics center.

Don Gilman of the NWS Extended Forecast Branch sketched some early ideas for a center at the request of Fred Shuman.
Bill Sprigg, on staff at NOAA headquarters, began developing ideas for a climate diagnostics center.

Don Gilman of the NWS Extended Forecast Branch sketched some early ideas for a center at the request of Fred Shuman.
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
Reflections on 25 Years of Analysis, Diagnosis, and Prediction
1979–2004
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 very much up in the air. Depending upon whom one chooses to believe, the department either knew 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 100 percent.

Simultaneously the Department of Agriculture behaved like a sleepwalker, ignoring available evidence that the Soviets were buying and not selling the wheat

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 Buehrdt, 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 F. Whittredge, 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."

J. Fred Buehrdt, Special Presidential Counsel
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.
UNDERSTANDING CLIMATIC CHANGE

A Program for Action

NATIONAL ACADEMY OF SCIENCES
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 sea sediments.

It was noted 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.
Nixon visits China – February 1972
Summit Meeting in Moscow – May 1972
Federal Plan For National Climatic Services

FCM 74-1

Washington, D.C.
January 1974
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.
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
El Niño in 1972-1973

12% shortfall in Russian grain production in 1972. Soviet decision to purchase abroad helped drive up food prices.