



Earth System Research Laboratory

SCIENCE, SERVICE & STEWARDSHIP

Research Activities at the Earth System Research Laboratory and the Cooperative Institute for Environmental

Untangling the WHY of Arctic variability

Taneil Uttal - Summaries

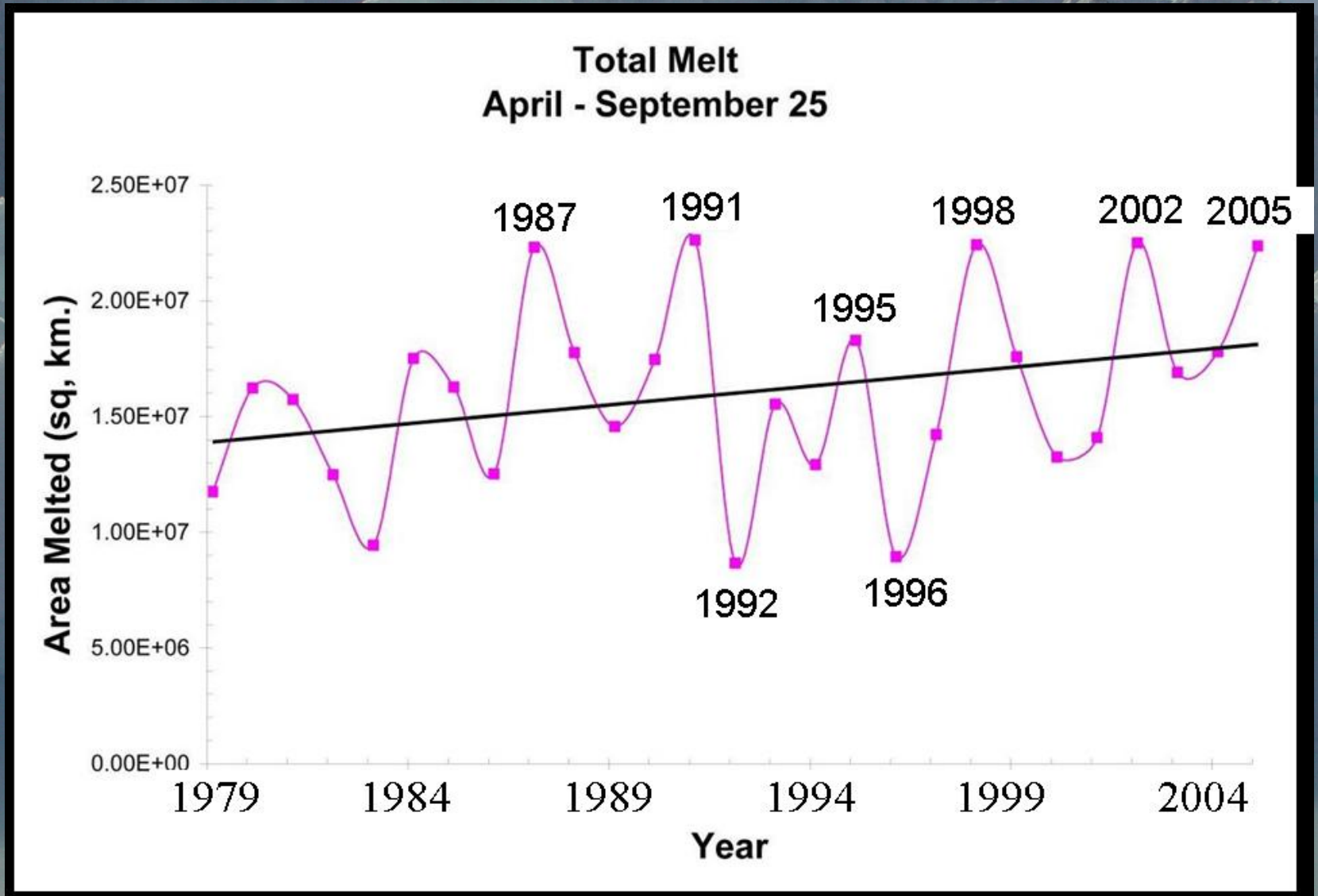
NOAA Earth System Research Laboratory

ESRL Dedication and Open House

August 23-24, 2006



Increasing Greenland Melt



Arctic Clouds and impacts on the Arctic System

02-Jul-2006 PM

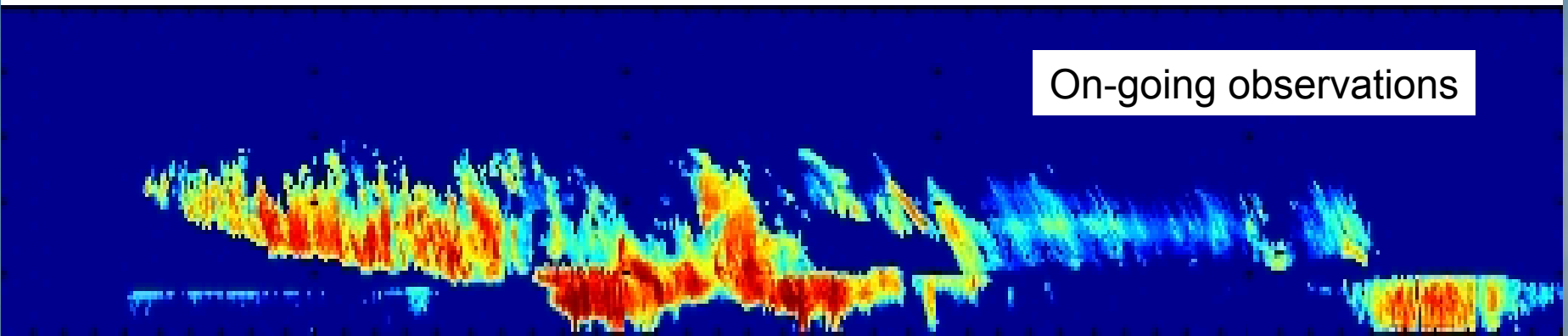
03-Jul-2006 AM

03-Jul-2006 PM

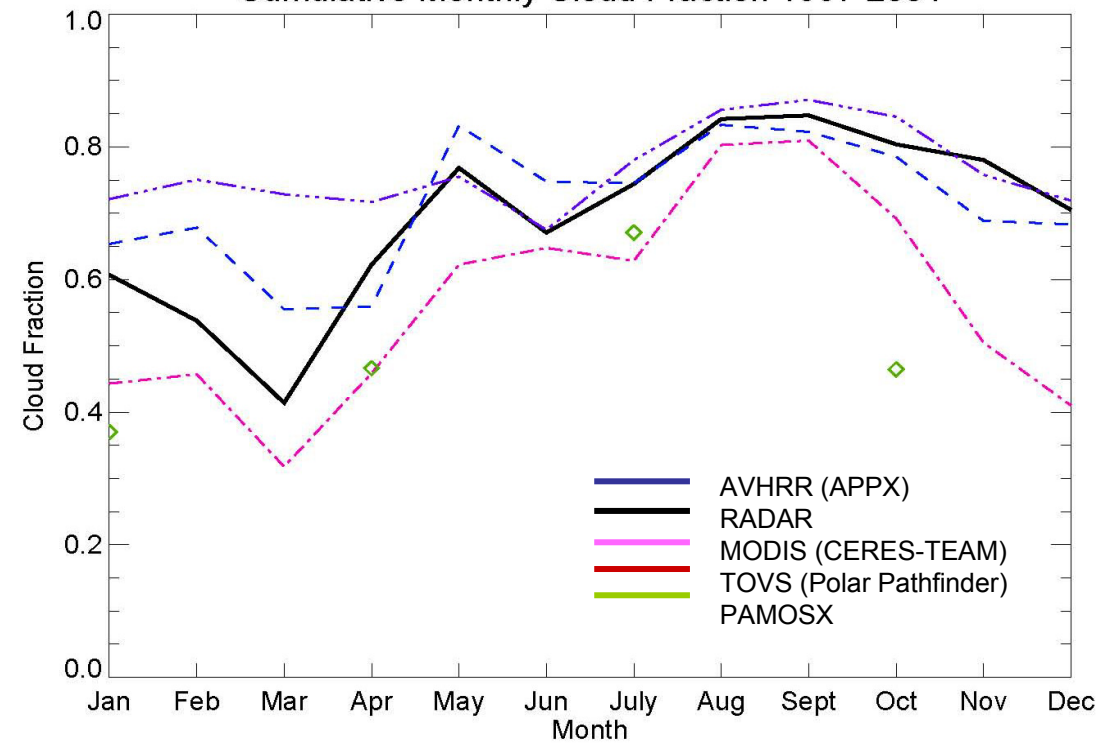
04-Jul-2006 AM

04-Jul-2006 PM

On-going observations



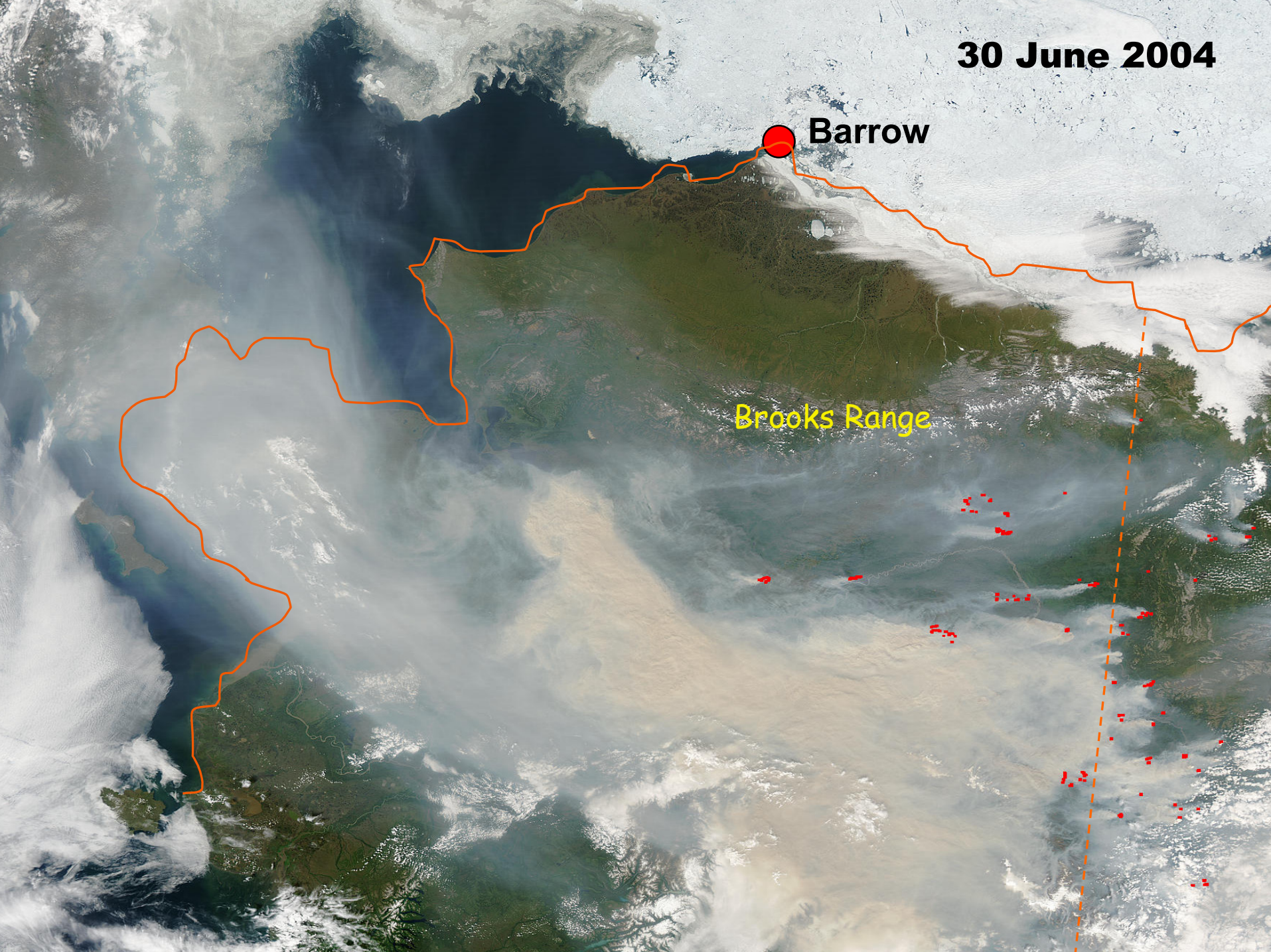
Cumulative Monthly Cloud Fraction 1997-2004



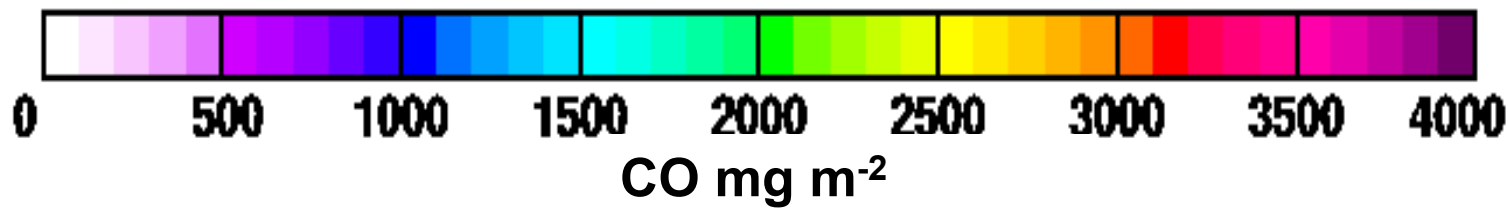
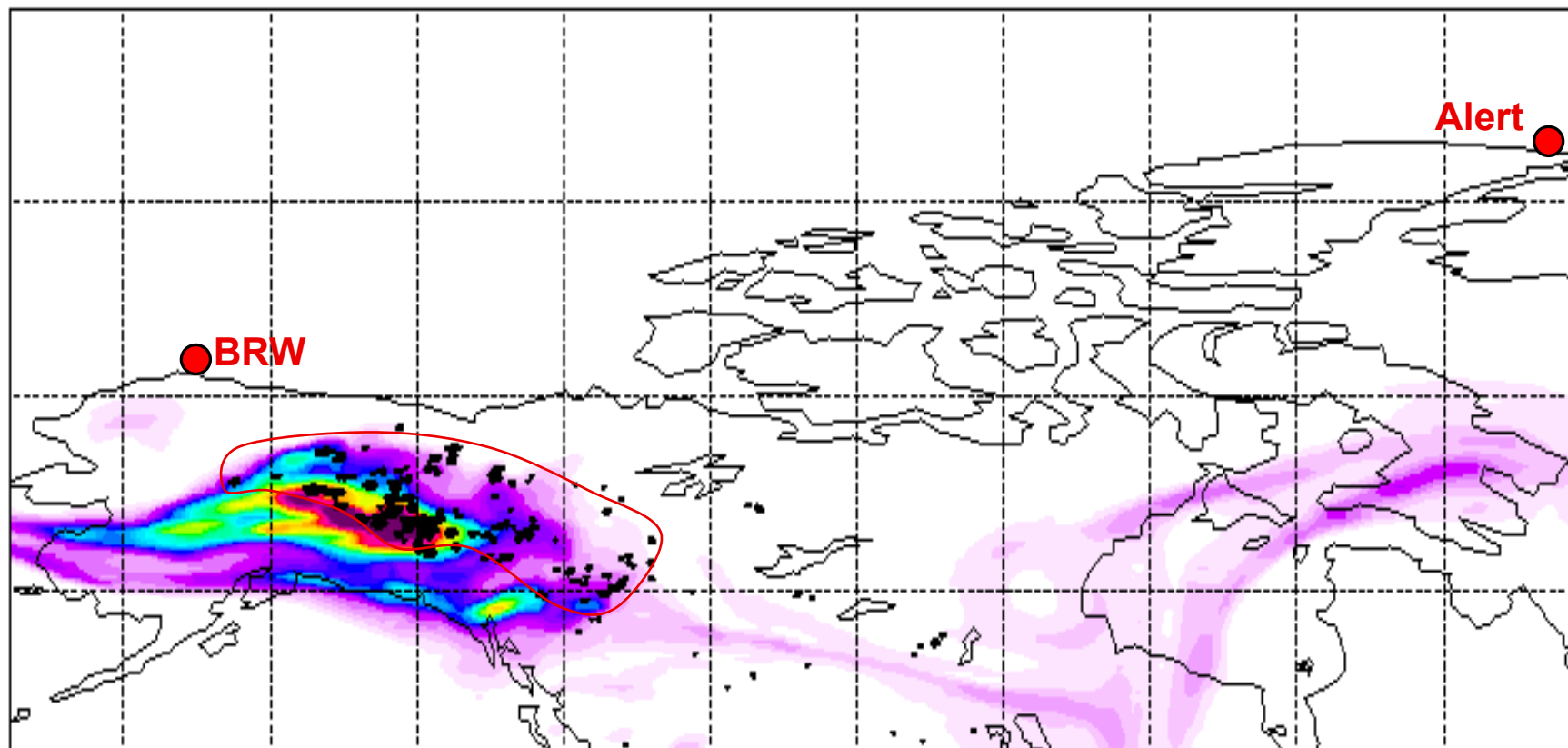
30 June 2004

Barrow

Brooks Range

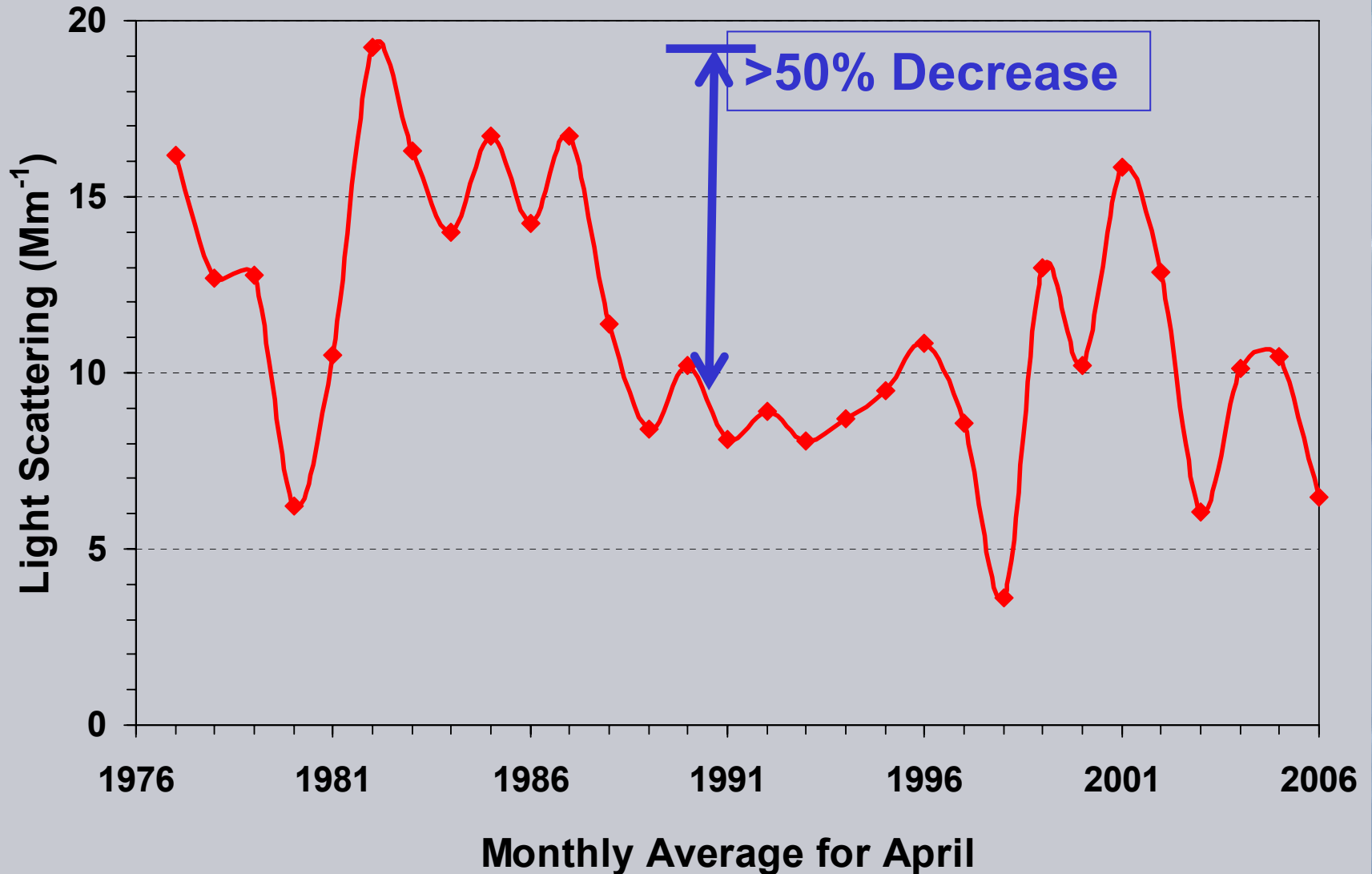


Actual time 20040629.120000

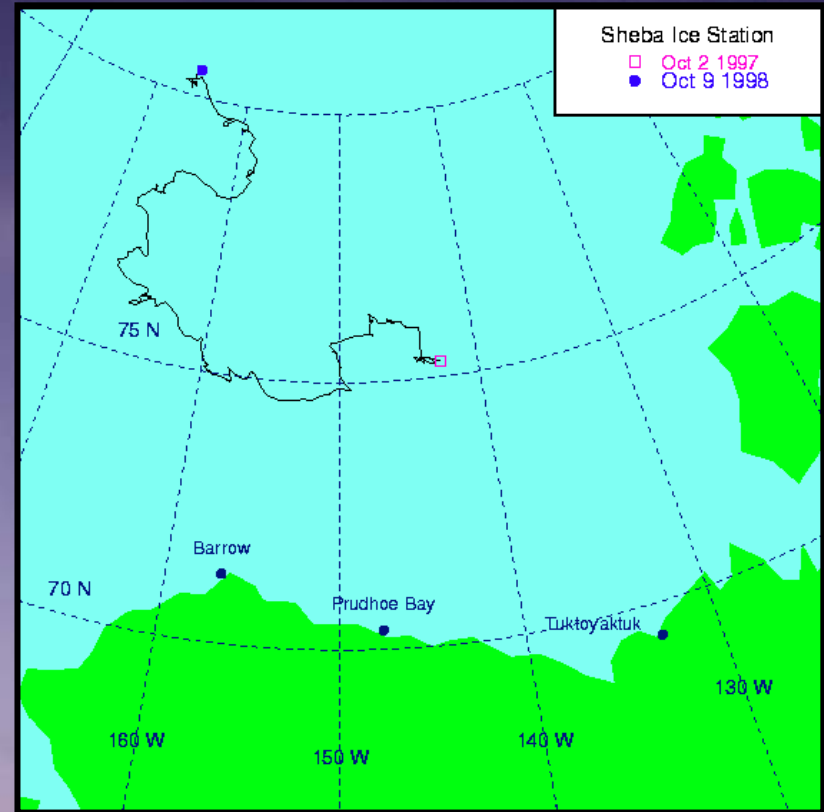
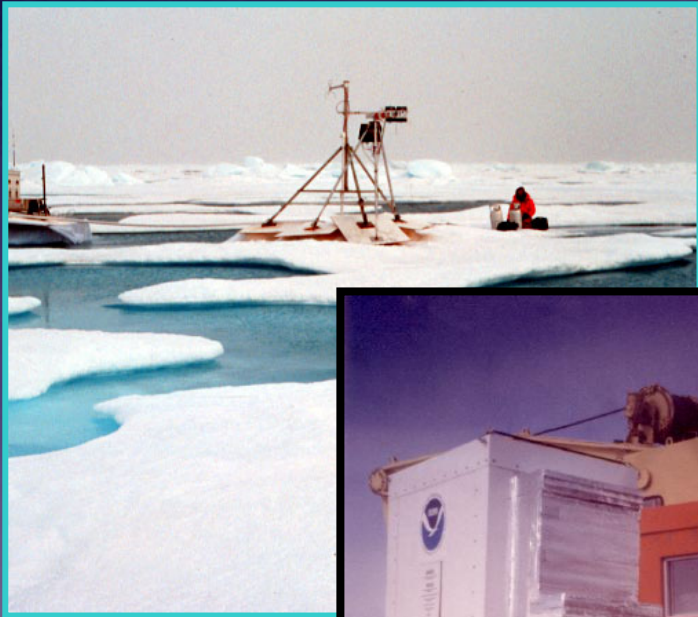


FLEXPART Tracer Simulation (A. Stohl 2006)

Long-term Arctic haze measurements track both human and natural variability

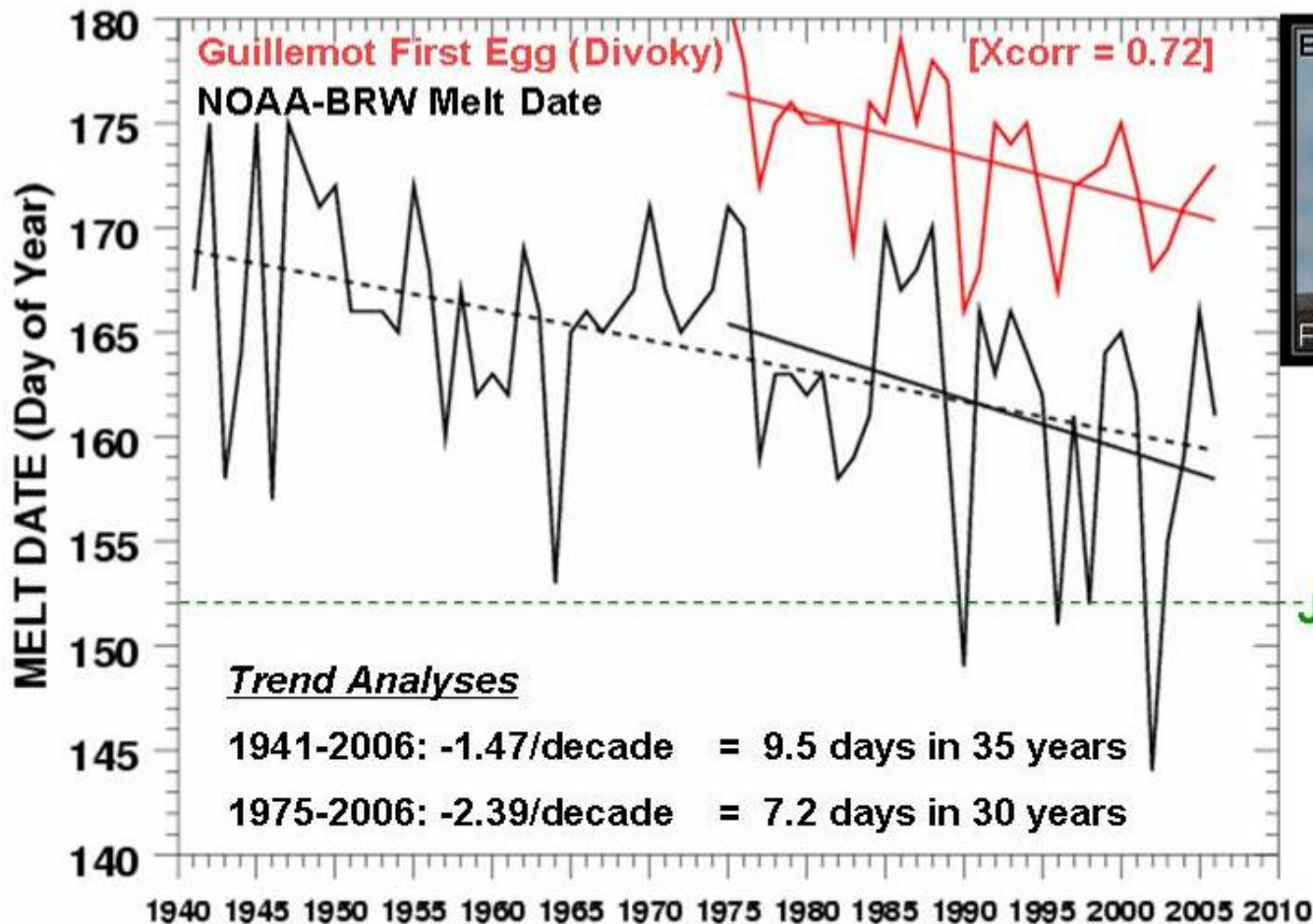


Studies in the Arctic Ocean



Barrow Snow Melt Date

Guillemot First Egg



June 1

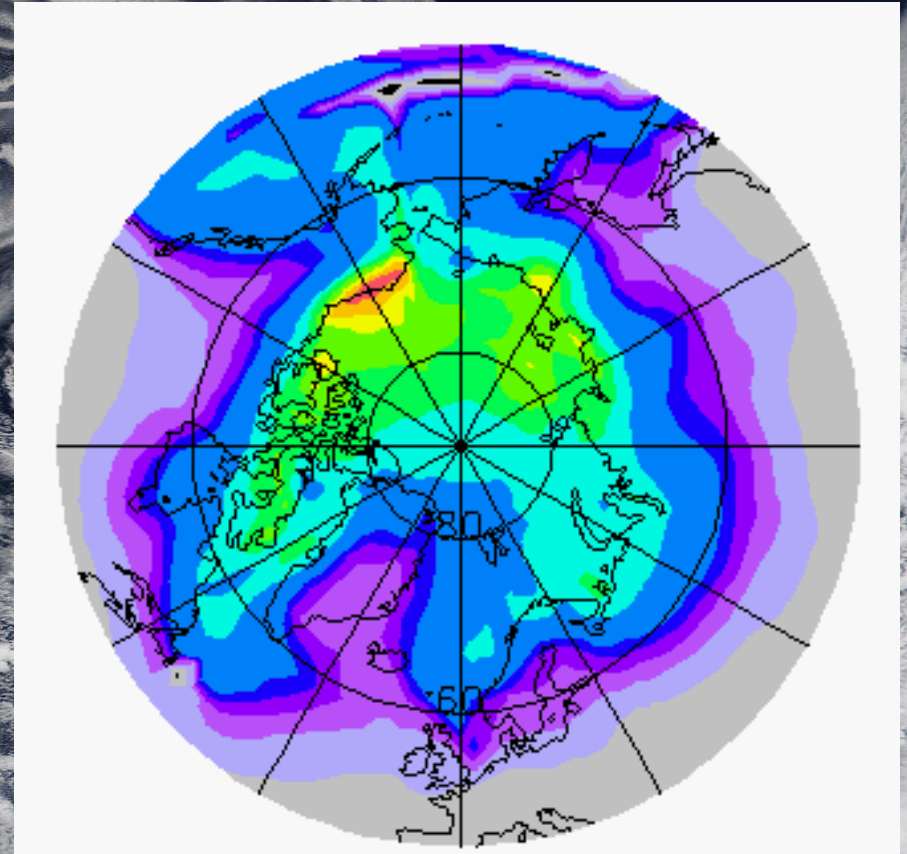
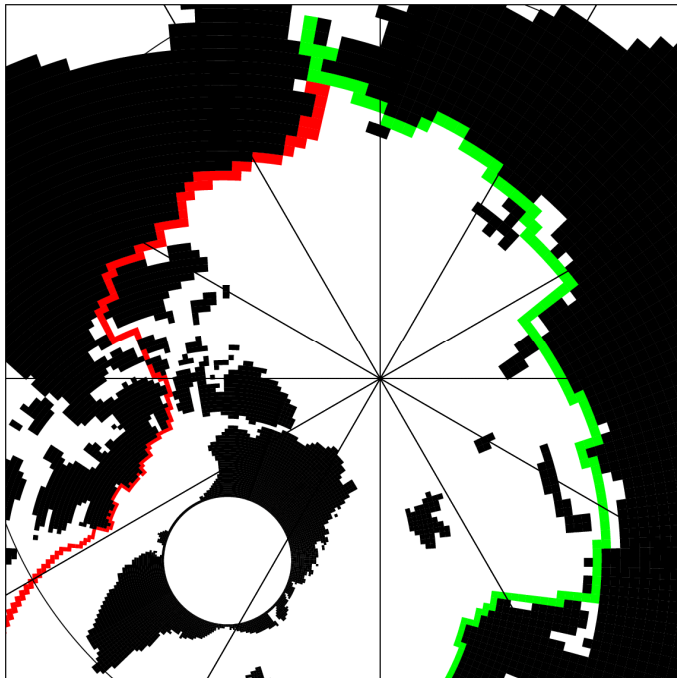
Mining Traditional Knowledge

- Arctic life style changes
- Cultural memories of the environment



Looking to the Future Arctic Ozone Pollution from Ships

Likely opening of the northern passages routes to shipping around 2050



Large increase in
ozone pollution

Building an Integrated Arctic Observation System

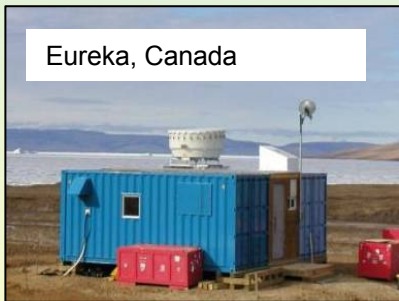
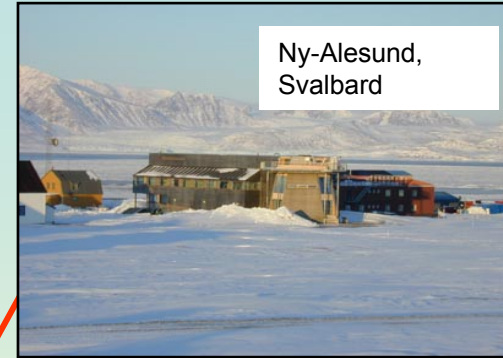


Photo courtesy D. G. Barton © 1992

Contributions to National and International Arctic Activities



US Committee to the
International Polar Year
2007-2008

[Home](#) [Contact Us](#)

A banner with a dark blue background. On the left is a photograph of a large iceberg with a hole in it. To the right of the image is the text 'US Committee to the International Polar Year 2007-2008'. At the bottom left, there are two links: 'Home' and 'Contact Us'.

SEARCH
STUDY OF ENVIRONMENTAL ARCTIC CHANGE

A banner with a dark blue background. On the left is a circular logo with a compass rose and the word 'SEARCH' at the top and 'STUDY OF ENVIRONMENTAL ARCTIC CHANGE' at the bottom. To the right of the logo is a stylized graphic of a wavy line representing a landscape or water. Below this graphic is a white bar containing the text 'STUDY OF ENVIRONMENTAL ARCTIC CHANGE' in blue capital letters.



QUESTIONS and DISCUSSION

PANEL

Mark Serreze

Claire Granier

Ola Persson

John Ogren

Matthew Shupe

David Hofmann

Ellsworth Dutton

Betsy Weatherhead

Robert Stone

- *NOAA Earth System Research Laboratory*
 - *ESRL Dedication and Open House*
 - *August 23-24, 2006*





The Take Home Message

There are many indicators that Arctic climate is changing

It is a global and international issue

ESRL has Arctic research activities that will be coordinated around a strong Arctic observing program

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