



**Earth System Research Laboratory**

*SCIENCE, SERVICE & STEWARDSHIP*

# **The Arctic on the Fast Track of Change**

***Dr. Mark Serreze (Cooperative Institute  
for Environmental Sciences)***

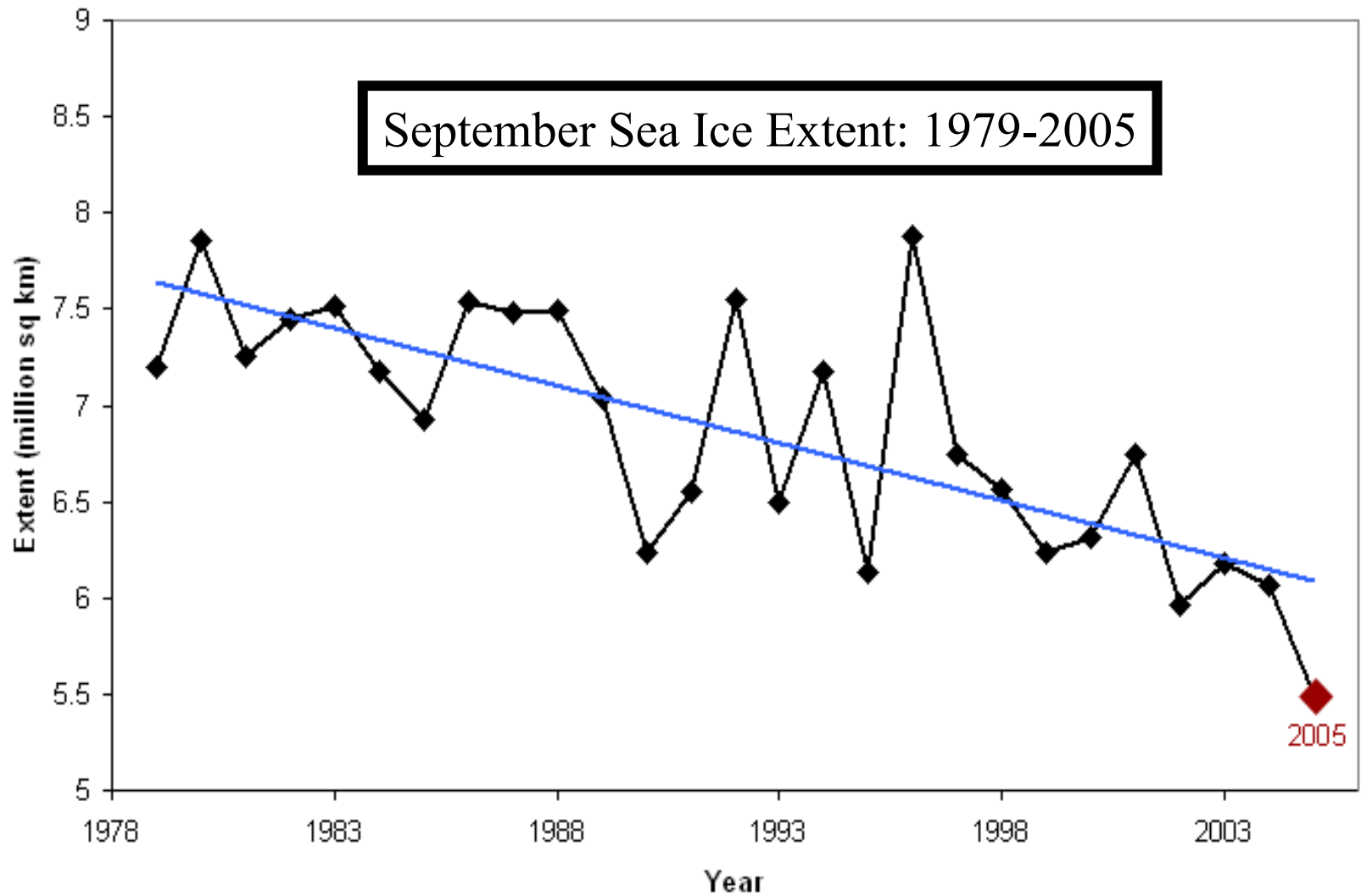
*NOAA Earth System Research Laboratory*

*ESRL Dedication and Open House*

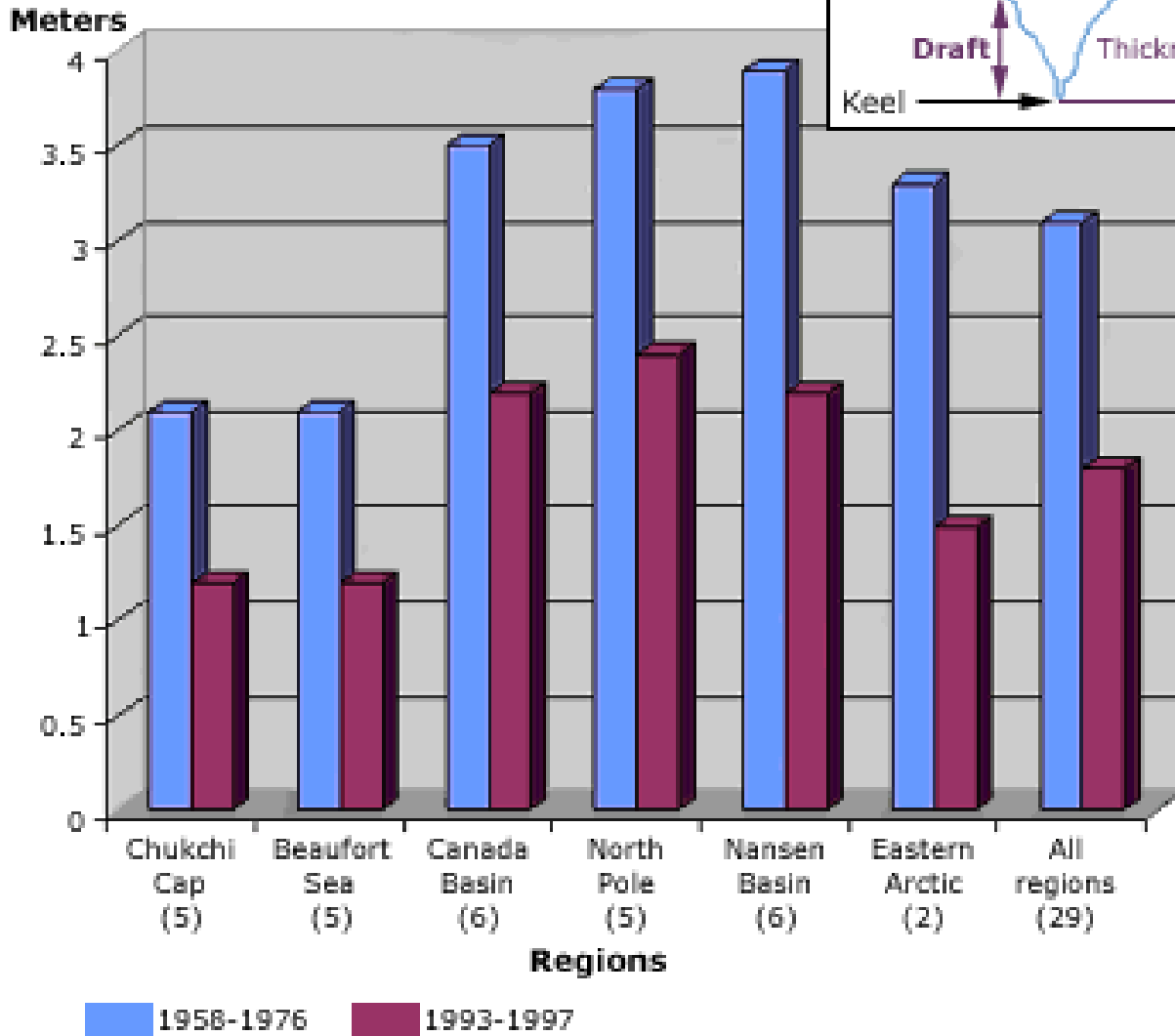
*August 23-24, 2006*



## September Sea Ice Extent: 1979-2005



# Mean Sea Ice Draft



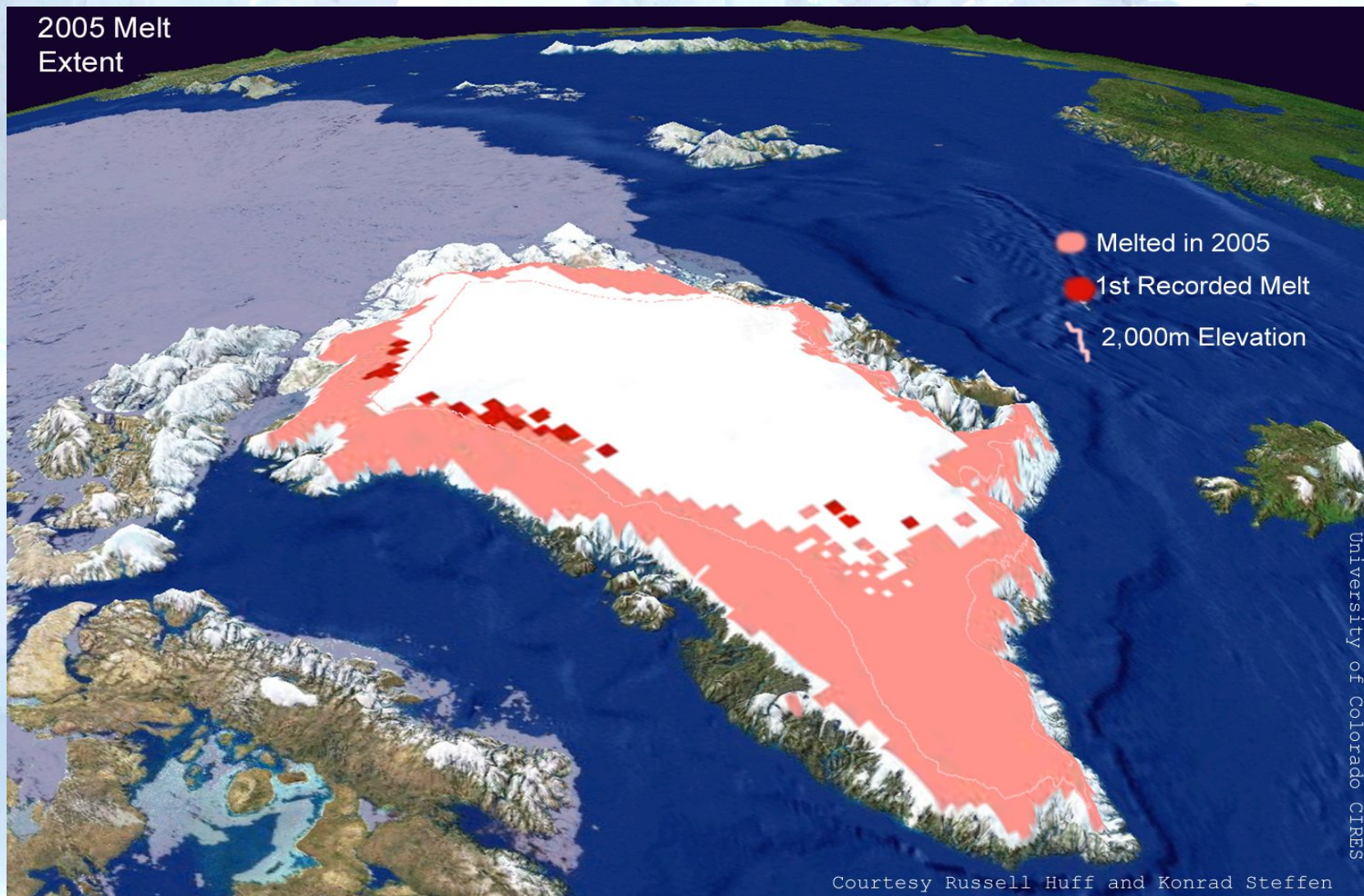
Sea Ice Thickness

# *The Problem of Coastal Erosion*

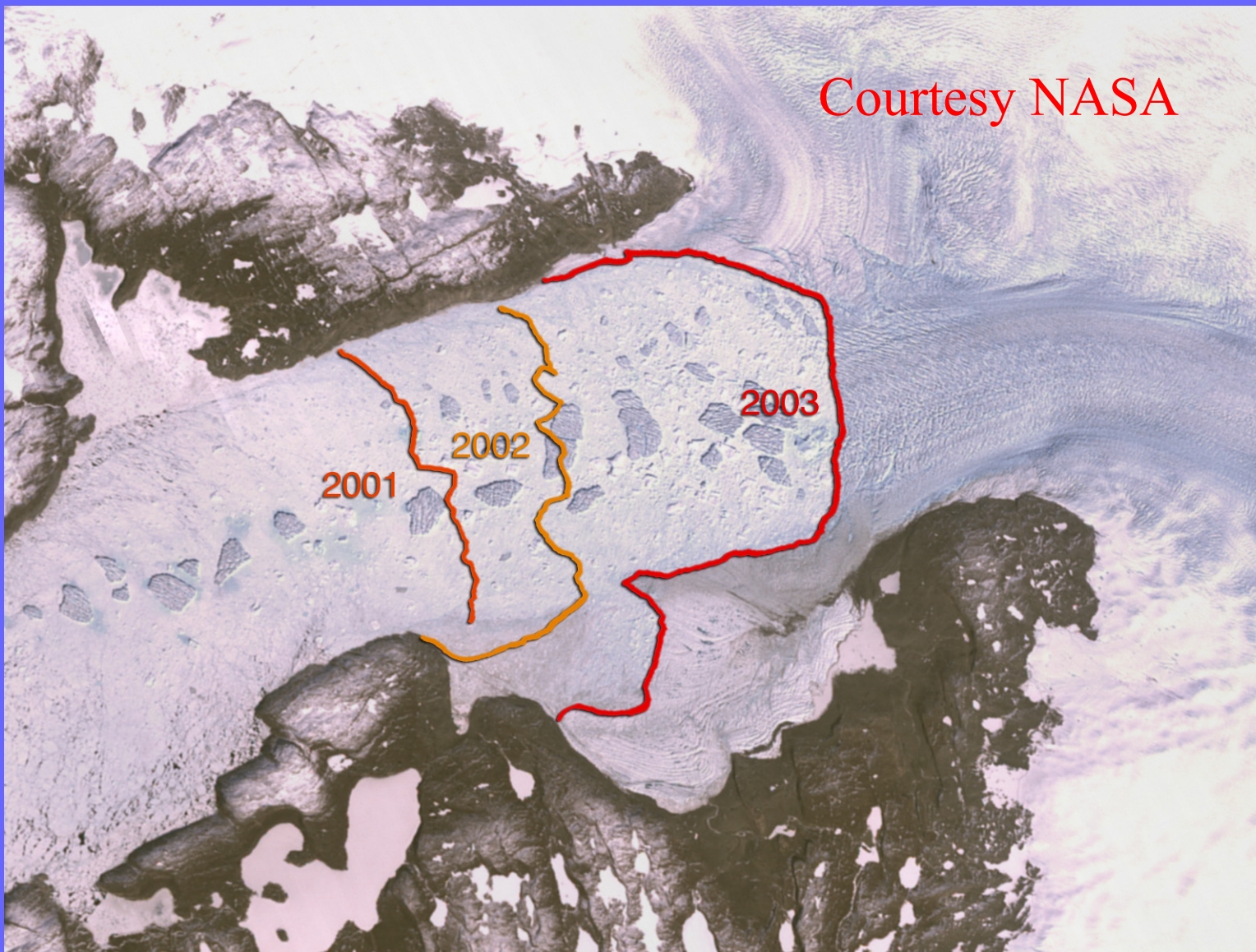


*Courtesy IARC, Dave Sanches*

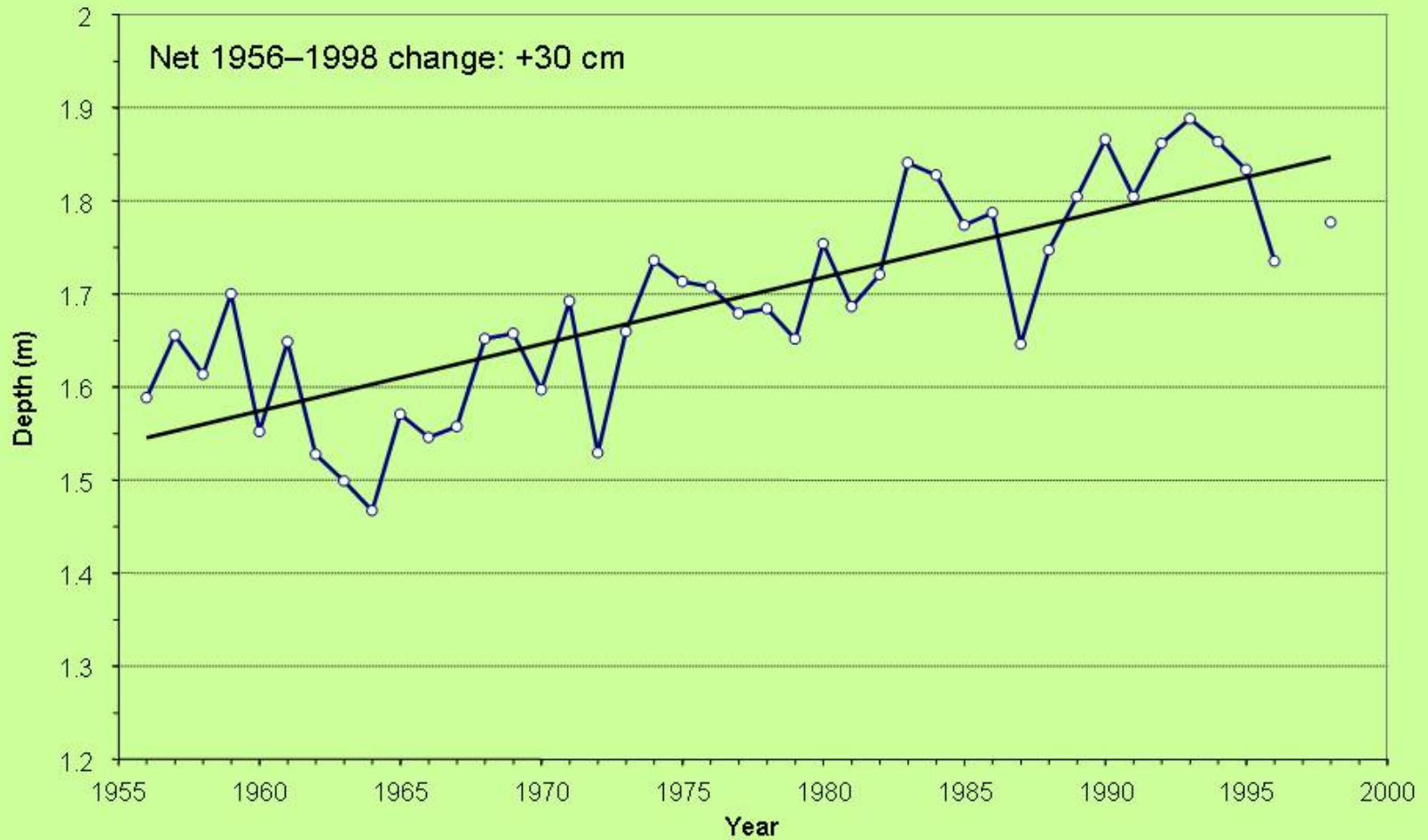
# Increasing Greenland Melt



# Receding Glaciers



## Active Layer Thickness Decreasing



Courtesy O. Frauenfeld

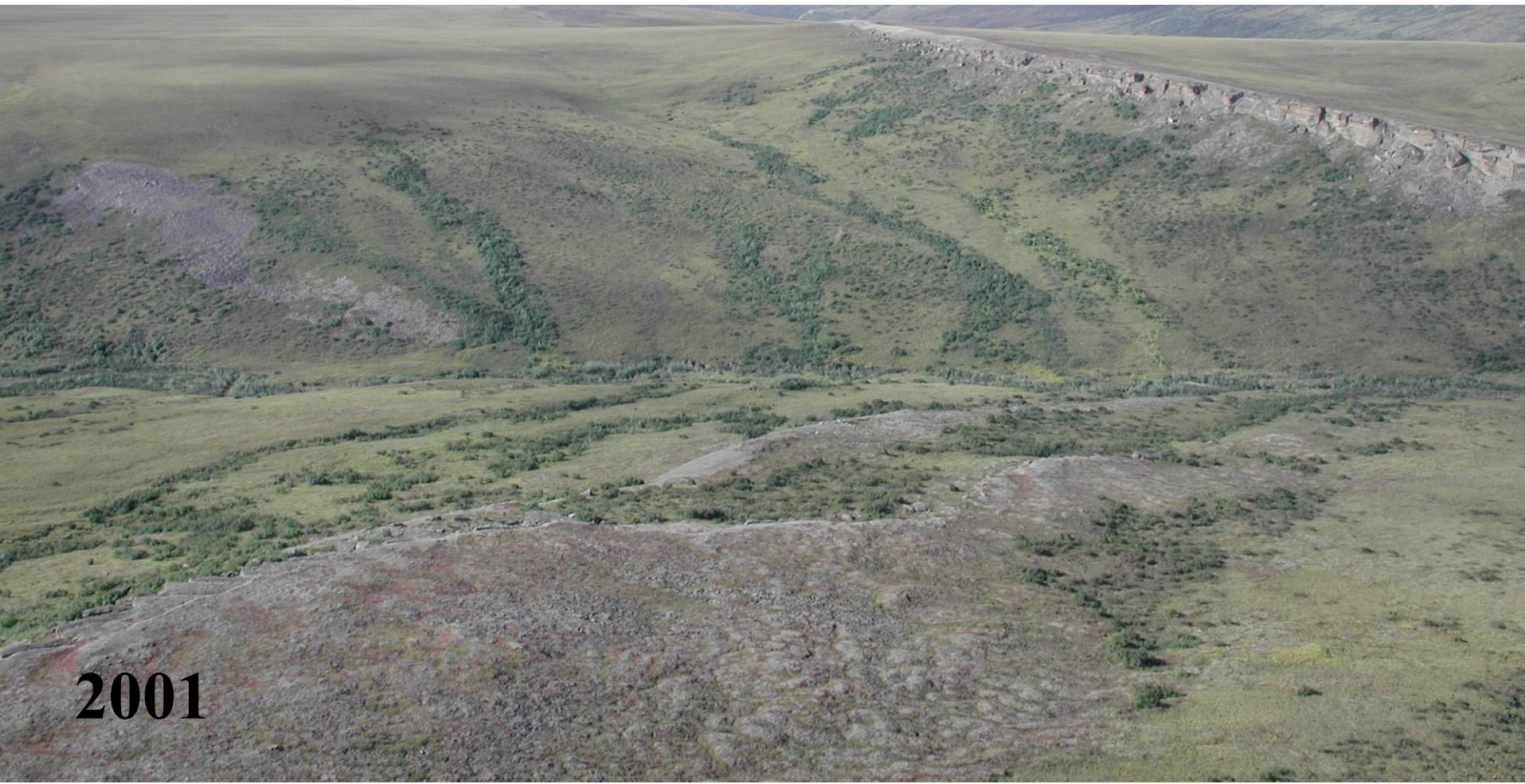
# Changes in Shrub Abundance: Chandler River, AK



**1949**

Sturm, Racine and Tape: Fifty Years of Change in Arctic Alaskan Shrub Abundance





2001