

CHANGE IN THE DATE OF SNOW DISAPPEARANCE IN THE HIGH ARCTIC

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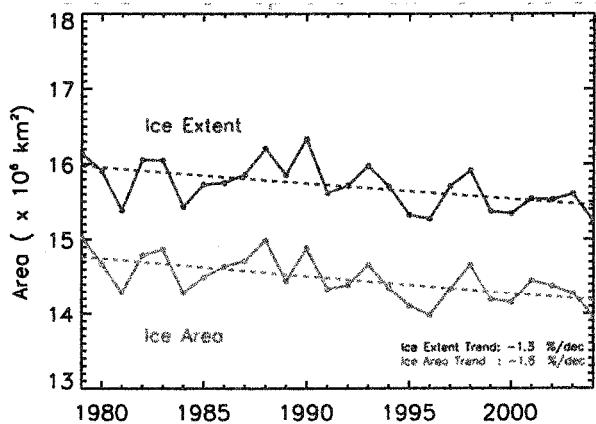
ABSTRACT

In this paper, we show changes in the dates of snow disappearance in the high Arctic (70° north latitude) between the late 1960s and the early 2000s. NOAA satellite data were employed to make these snow observations (from snow cover to snow free conditions), using arbitrary but consistent boundaries. Continuing the study presented by Foster et al, (1992) on springtime snow disappearance in the high Arctic, the date the snowline retreats during the spring (when it first moves north of the 70 degree parallel), for many Arctic locations, has occurred approximately a week earlier in recent years compared to the late 1960s. The tendency toward earlier snowmelt previously observed during the past several decades has apparently neither been a local phenomenon nor a short-term fluctuation. However, unlike other markers of climate warming in the Arctic, since 1990, the date of snow disappearance has not occurred noticeably earlier. It is possible that the date of snow disappearance is not an adequate benchmark for detecting warming signal.

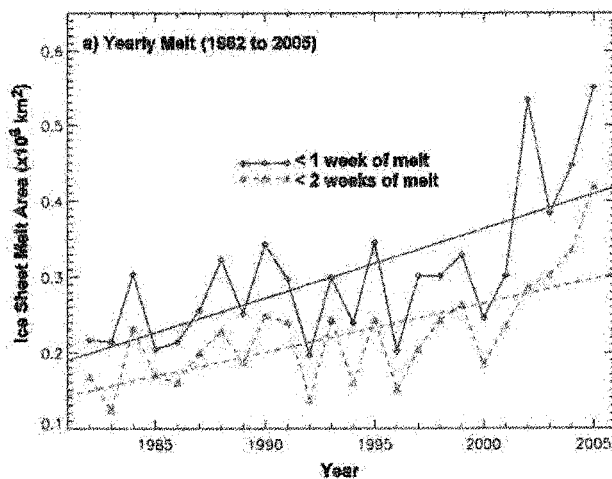
PRESENTATION EXTRACTS

Slide 2: Objectives: Yearly Arctic Ice Cover during Maximum Extents 1979-2003:

-Arctic Extents and Areas during Ice Maxima. Trends are -1.3 and -1.6 %/decade, respectively.



Slide 3: Area of melt increased dramatically in Greenland during the last four years



Slide 4: Length of melt period:

- Trends
 - Sea Ice Trend = 13.1 days/decade
 - Greenland Trend = 4.1 days/decade
 - Eurasia Trend = -0.3 days/decade
 - North America Trend = 5.4 days/decade
- Melt length correlates well with perennial ice area but with a lag of one year

Slide 5: Conclusions:

- In this study, the date the snowline retreats during the spring (when it first moves north of the 70 degree parallel), for many Arctic locations, has occurred approximately a week earlier in recent years compared to the late 1960s.
- Thus, the tendency toward earlier snowmelt observed previously has neither been a local phenomenon nor a short-term fluctuation.
- Nonetheless, it appears that since 1990, the date the snowline first retreats north during the spring has remained nearly unchanged --in the last 15 years, the date of snow disappearance has not been occurring noticeably earlier, but snow cover has actually been forming earlier in the autumn.