Migration in the Great Lakes Basin

2006

Ronald P. Larkin
Wildlife Ecologist
Illinois Natural History Survey

On the average, everybody in Illinois is standing on 2 feet of coal

I lectured on global warming 15 years ago, when it was an emerging issue

I lived downwind of northern New Jersey for several years

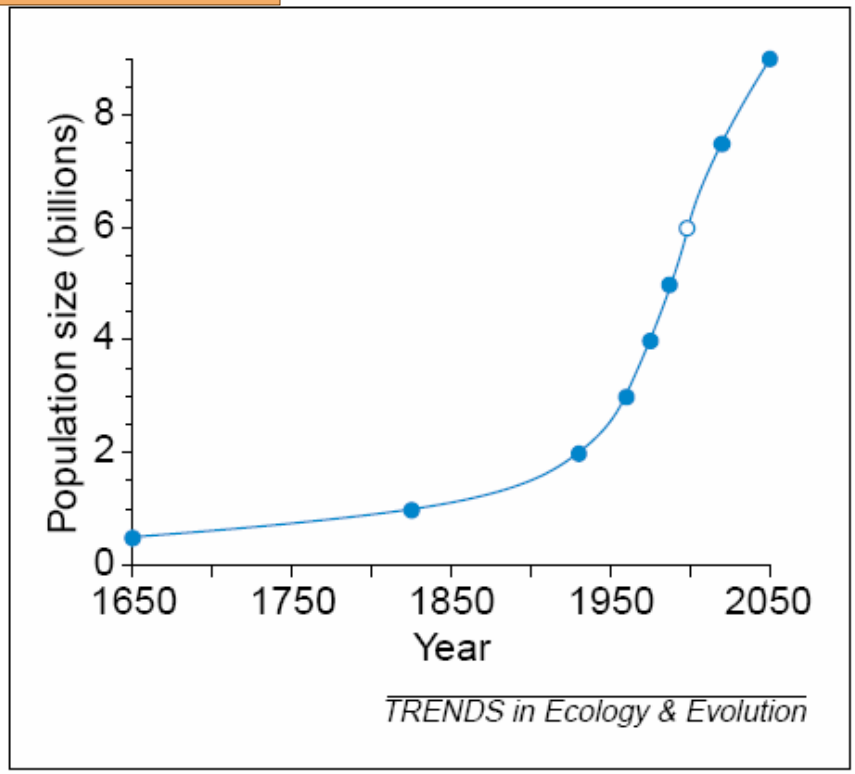
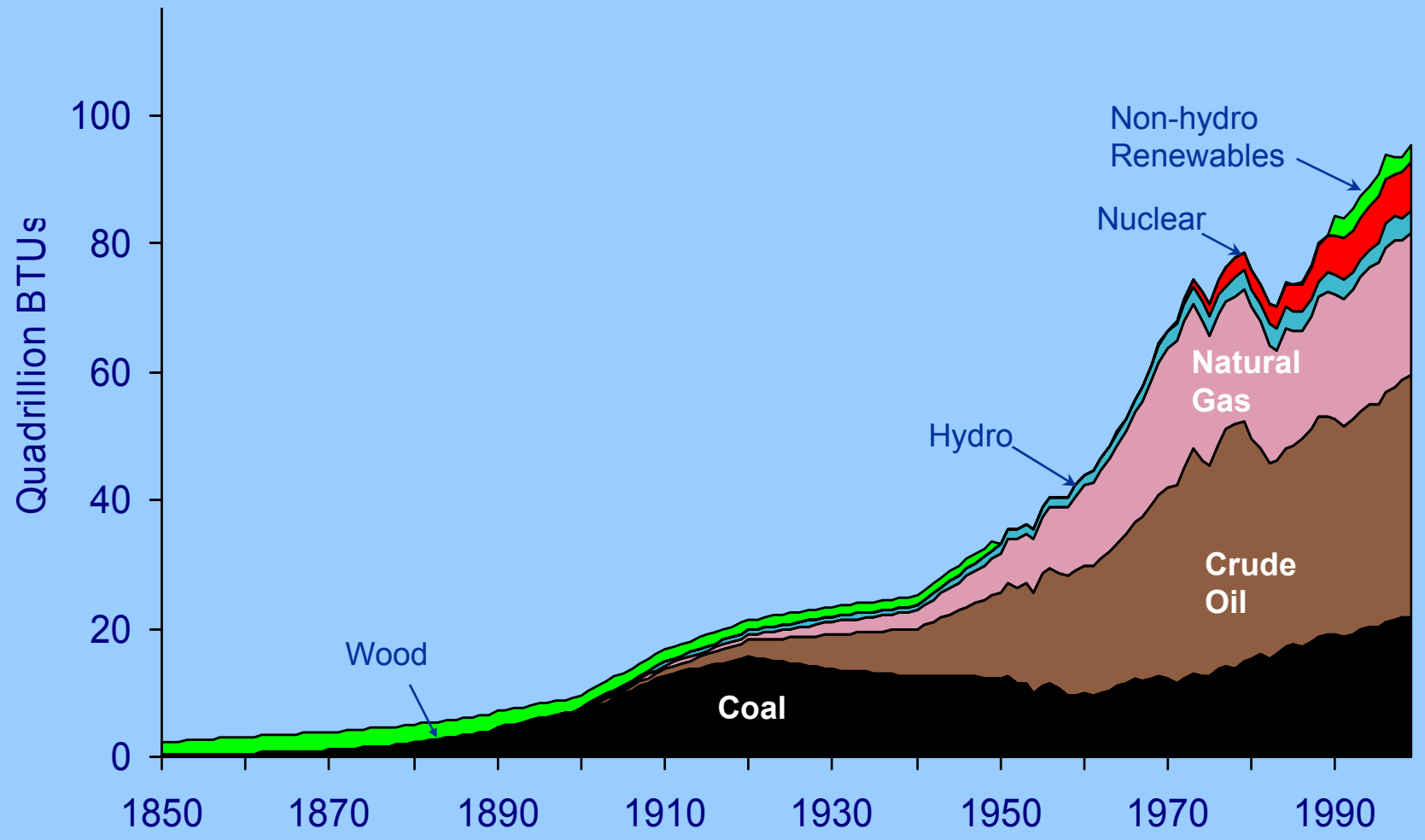


Fig. 1. Rapid growth of the human population from 1650 to 2050 (data taken from Ref. 2). The curve was fitted by a cubic spline function. The current population is indicated by the open circle.

Laurance, W. F. 2001. Future shock: firecasting a grim fate for the Earth. *Trends in Ecology & Evolution* **16**:531-533.

U.S. Energy Consumption

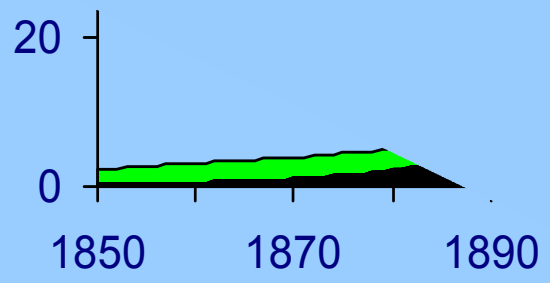
by source - 1850-1999



Source: 1850-1949, Energy Perspectives: A Presentation of Major Energy and Energy-Related Data, U.S. Department of the Interior, 1975; 1950-1996, Annual Energy Review 1996, Table 1.3. Note: Between 1950 and 1990, there was no reporting of non-utility use of renewables. 1997-1999, Annual Energy Review 1999, Table F1b.

Consumption
1999

conservation



Source: 1850-1949, Energy Perspectives: A Presentation of Major Energy a
1975; 1950-1996, Annual Energy Review 1996, Table 1.3. Note: Between 1950 a
renewables. 1997-1999, Annual Energy Review 1999, Table F1b.

Themes you will hear repeated in the conference

- migrating *animals*, not just birds
- habitat
- episodic
- height
- corridors, flyways?
- airborne moisture, rain

migrating *animals*

The problems

Groups are in subjective descending order of concern

Bats migrating in fall in E USA
Endemic Pleistocene relict populations on mountain tops
Amphibians homing to breeding ponds (?)
Species not yet studied

Bats emerging from nearby day roosts
Birds using nearby stopover habitat on migration
Grouse and similar open-country ground-dwelling birds
Raptors in daytime in certain locations
Birds using mountain passes during nocturnal migration (?)
Seabirds rafting (?) offshore
Species not yet studied

Birds in nocturnal cruising migratory flight over level land at 30 to 120 m AGL
Birds "commuting", such as waterfowl in daytime
Species not yet studied

Many other species breeding and dispersing locally (aerial courtship displays?)
Species not yet studied
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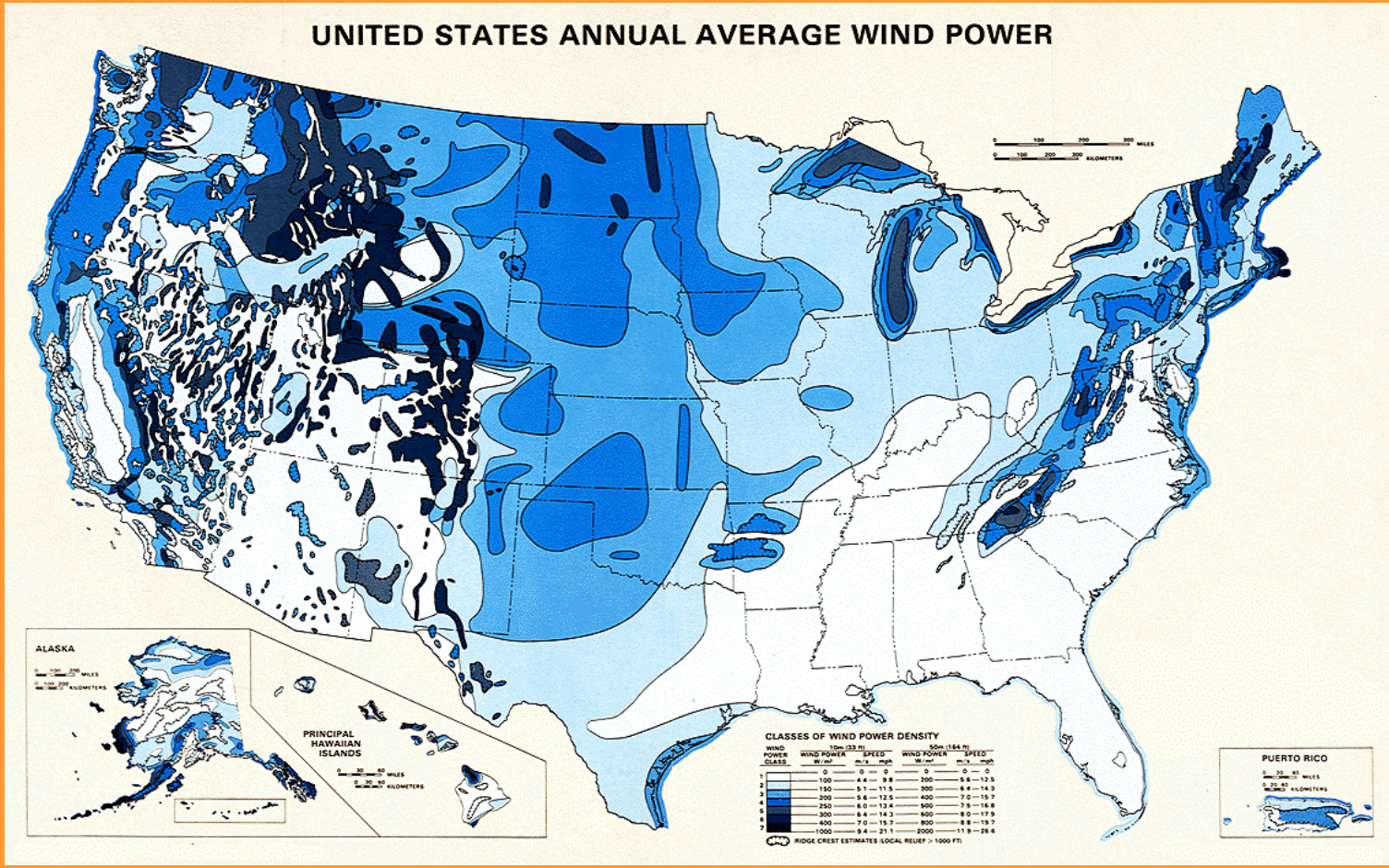
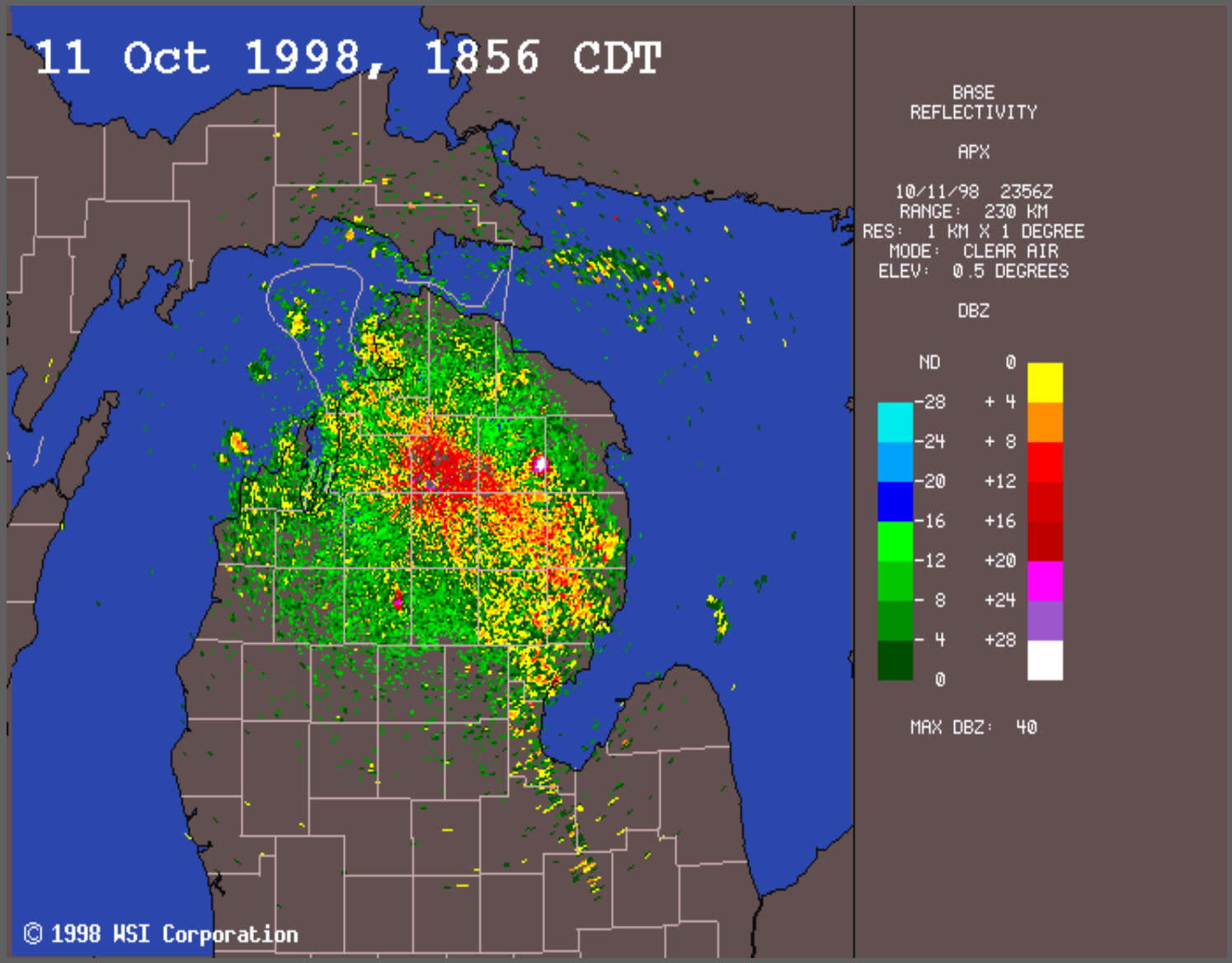
habitat



54% of population lives in coastal counties

South-central Michigan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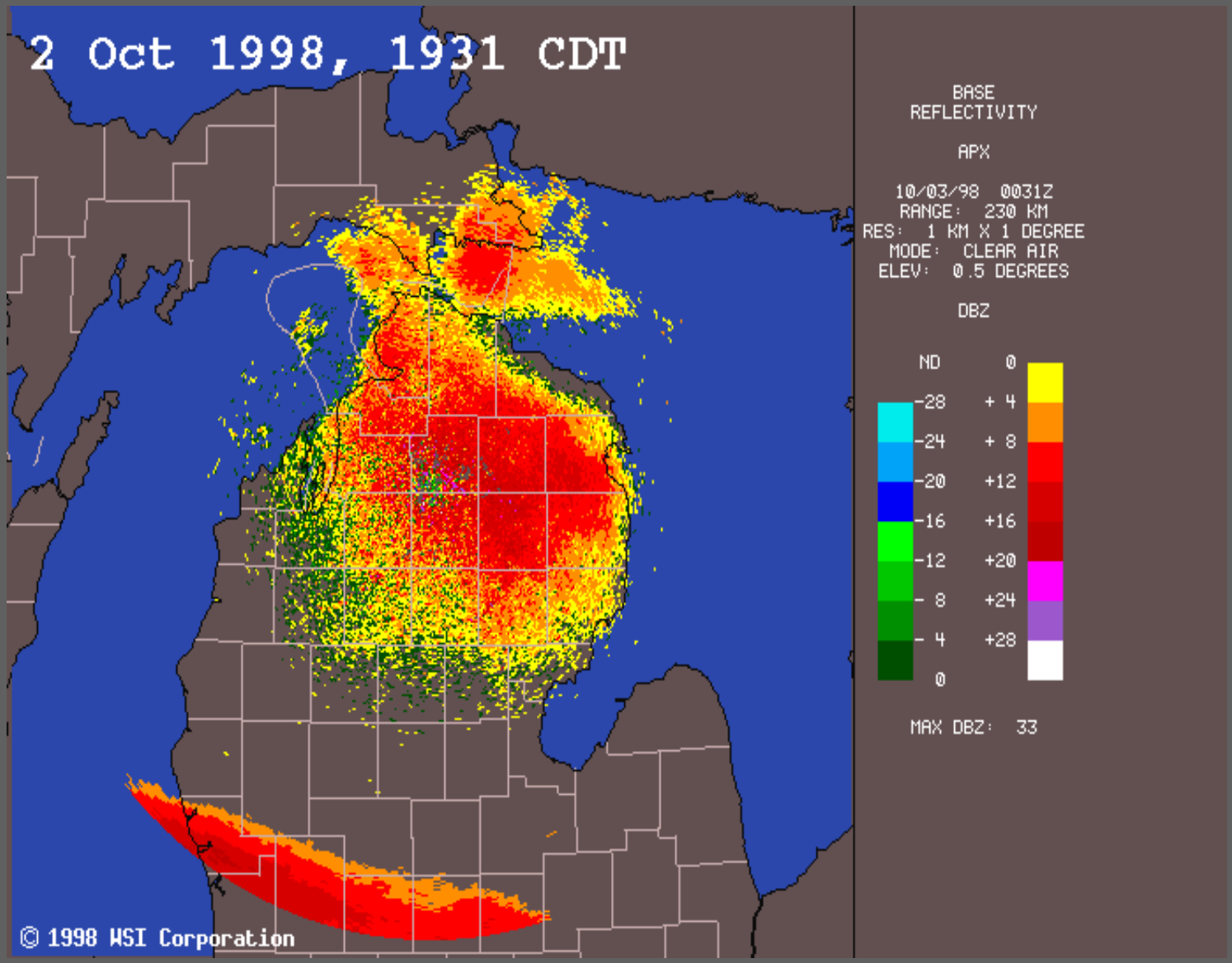
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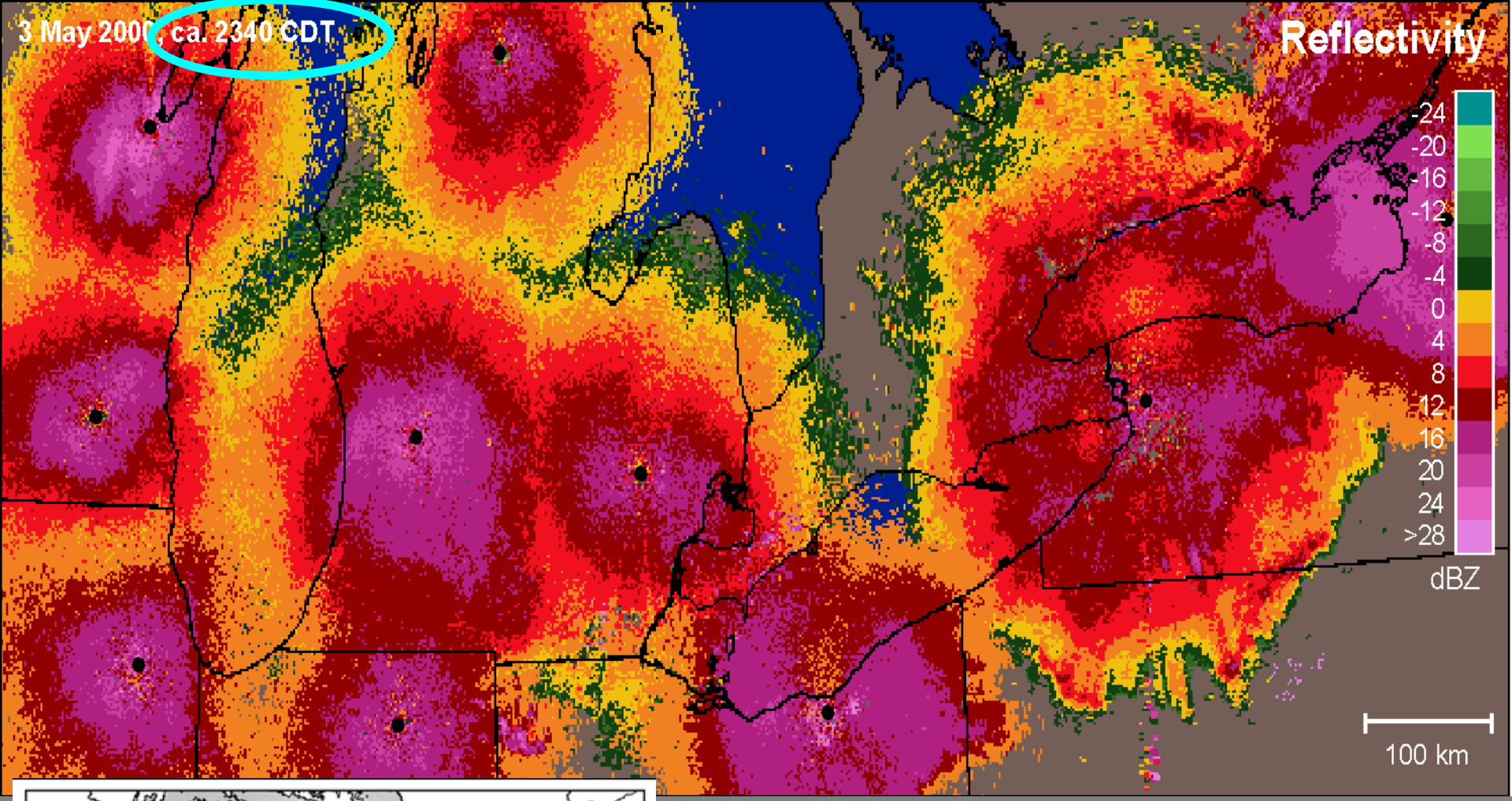
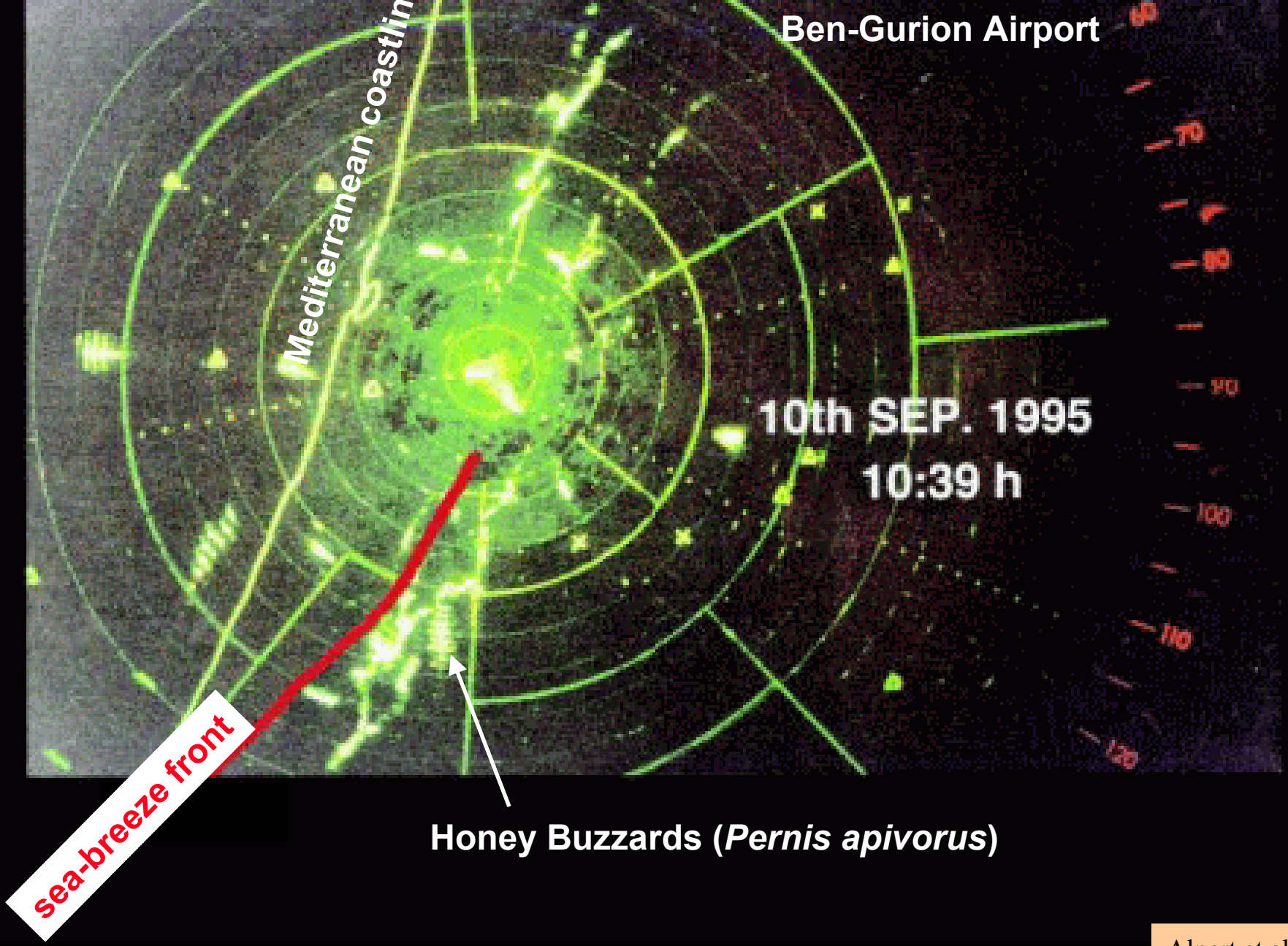


from: Diehl, R. H., R. P. Larkin, and J. E. Black. 2003. Bird migration around the Great Lakes on Doppler radar: implications for habitat conservation. Auk **120**:278-290.

raptors want thermals

SPNI



Alpert et al.
BAMS,
2000

migration is episodic

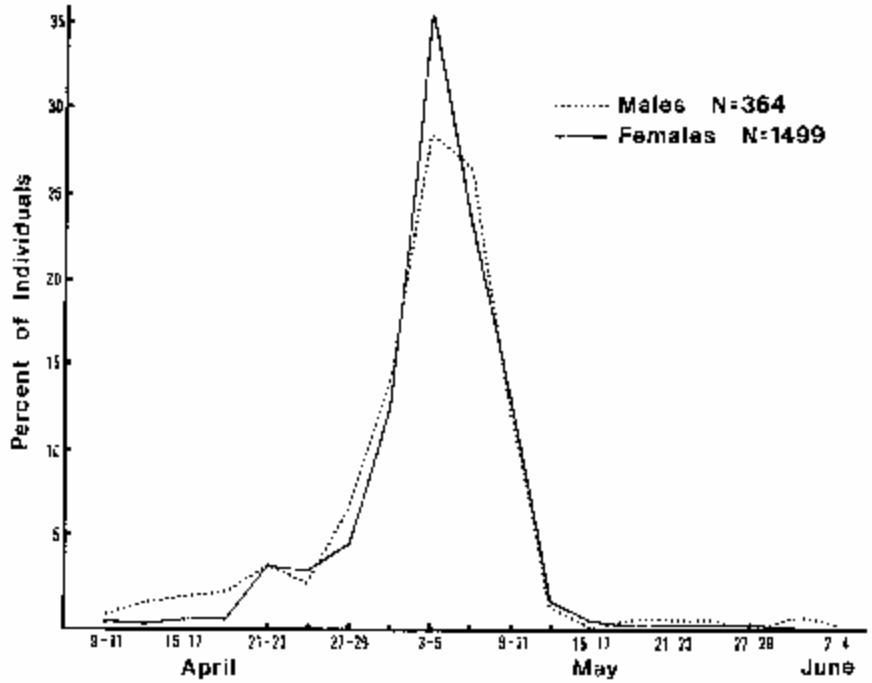
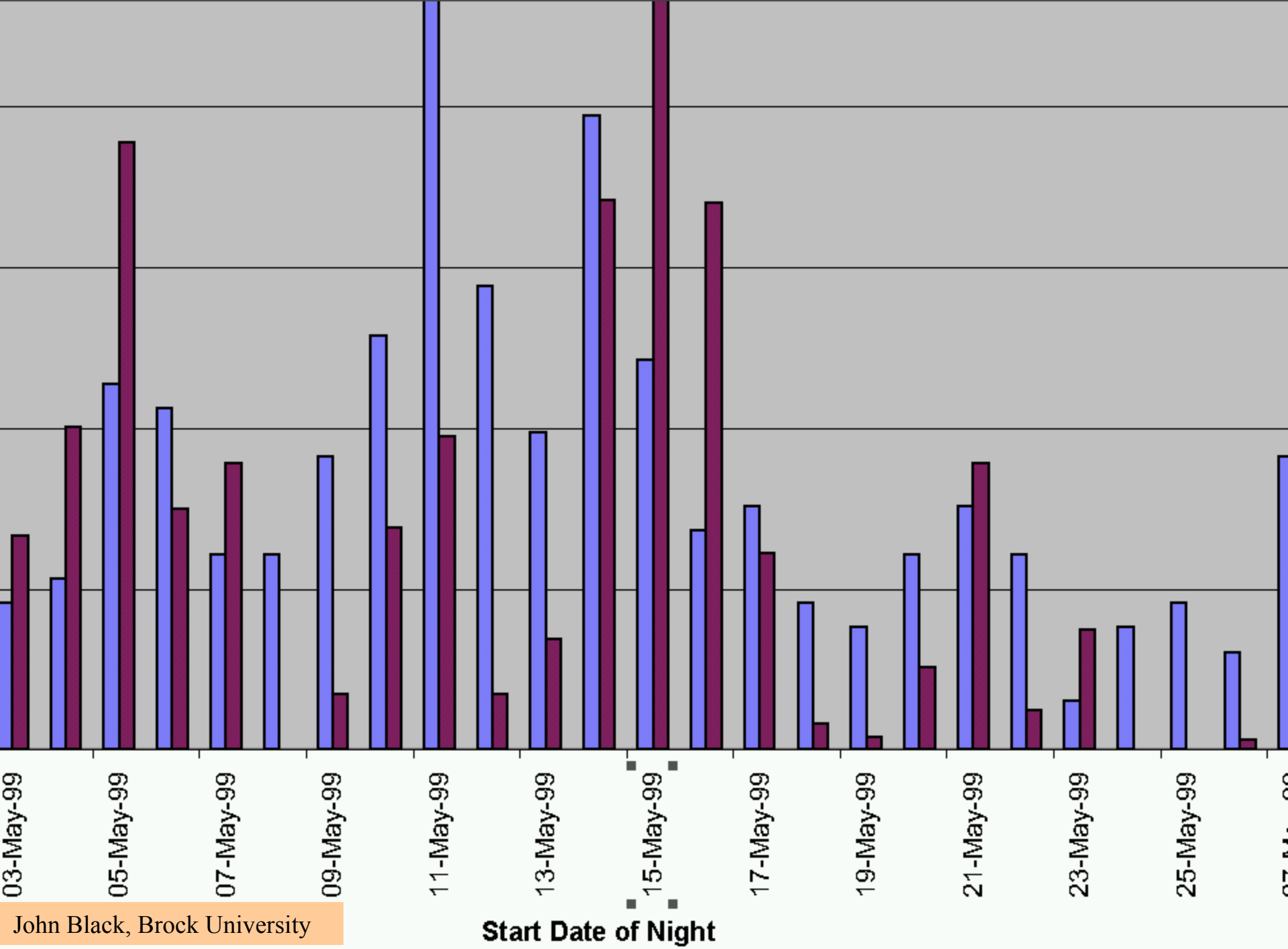


FIGURE 1. Seasonal distribution of ASY Sharp-shinned Hawks during spring migration past Whitefish Point, Michigan (based on banding data).

Devereau et al. Journal of Field Ornithology, 1985

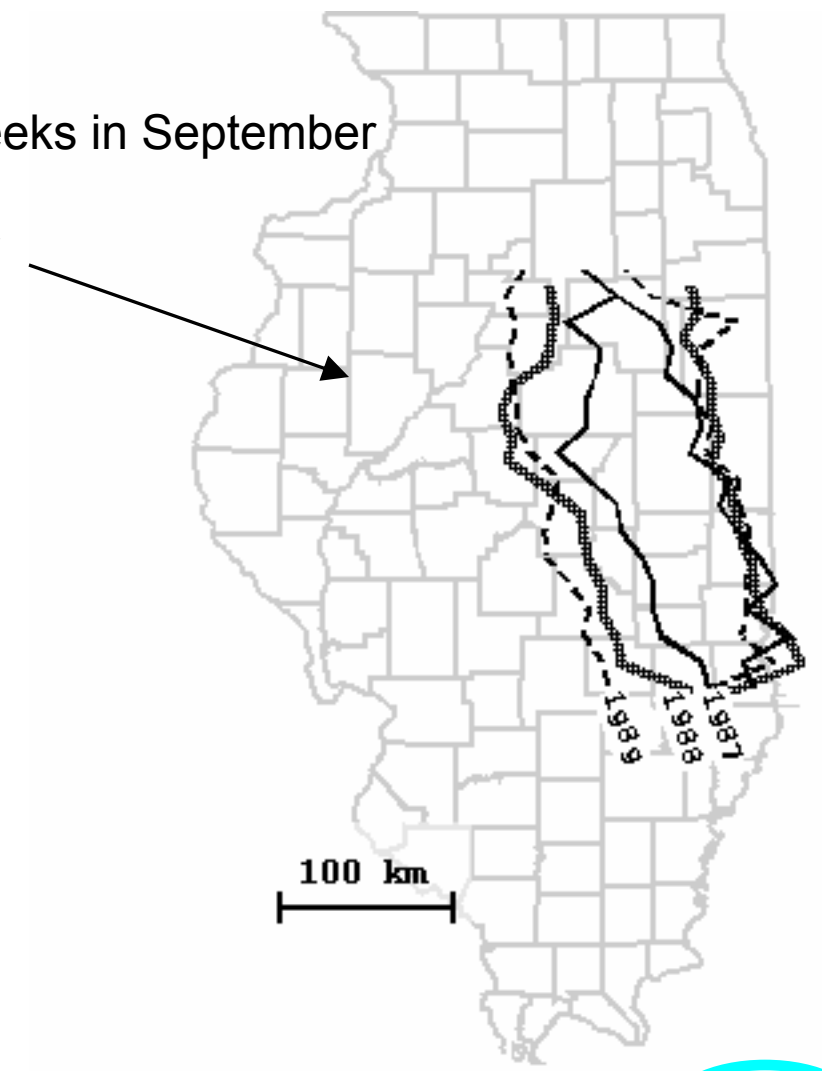


John Black, Brock University

first shorebirds: early July

nocturnal songbirds: peak 1st 2 weeks in September

last waterfowl: early January

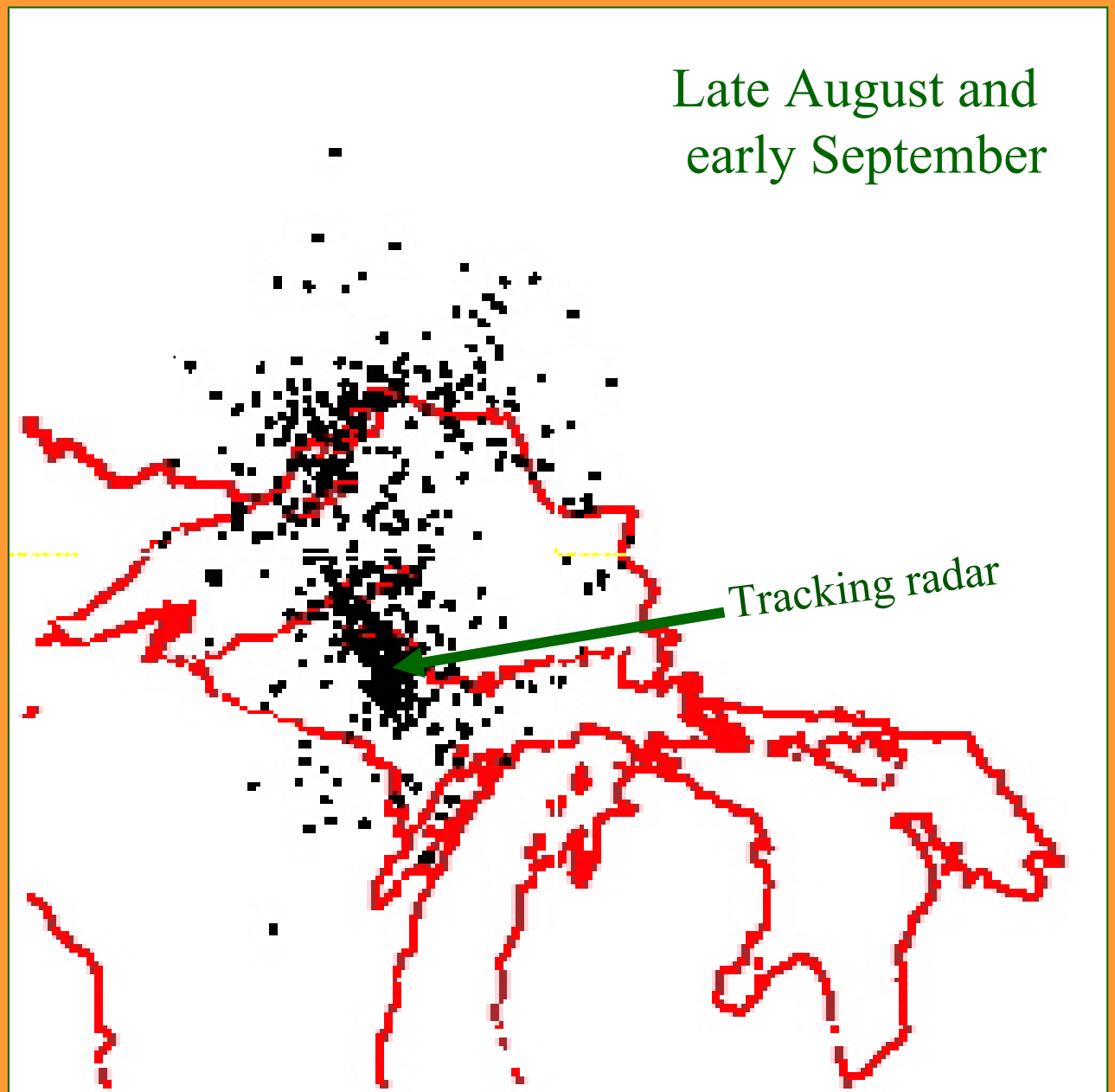


Eastern and western edges of migration corridor of the Mississippi Valley Population of Canada Geese in three years

R. Larkin, Illinois Natural History Survey

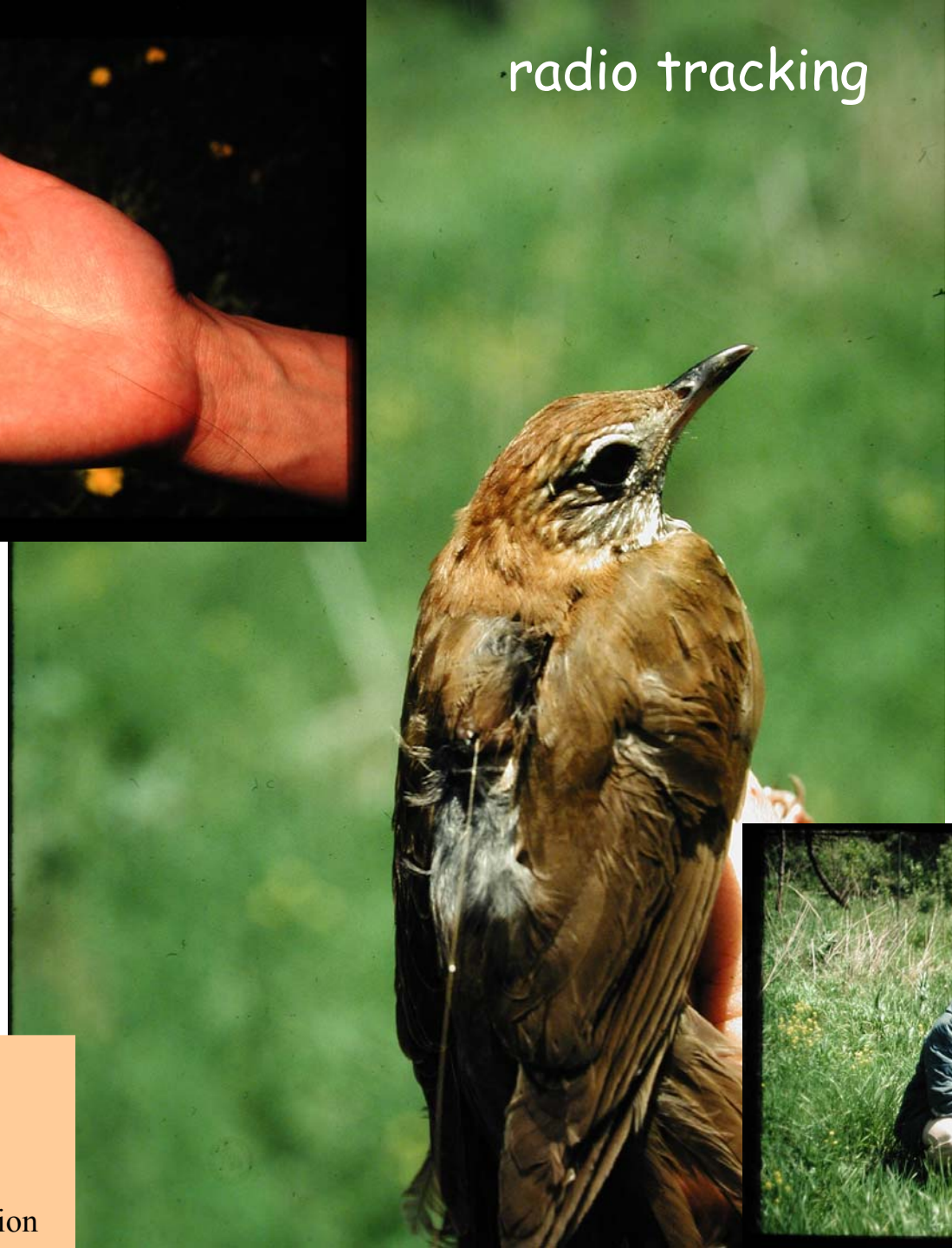
Gene Mueller
Illinois State Water Survey
National Science Foundation
US Air Force

corridors? flyways??

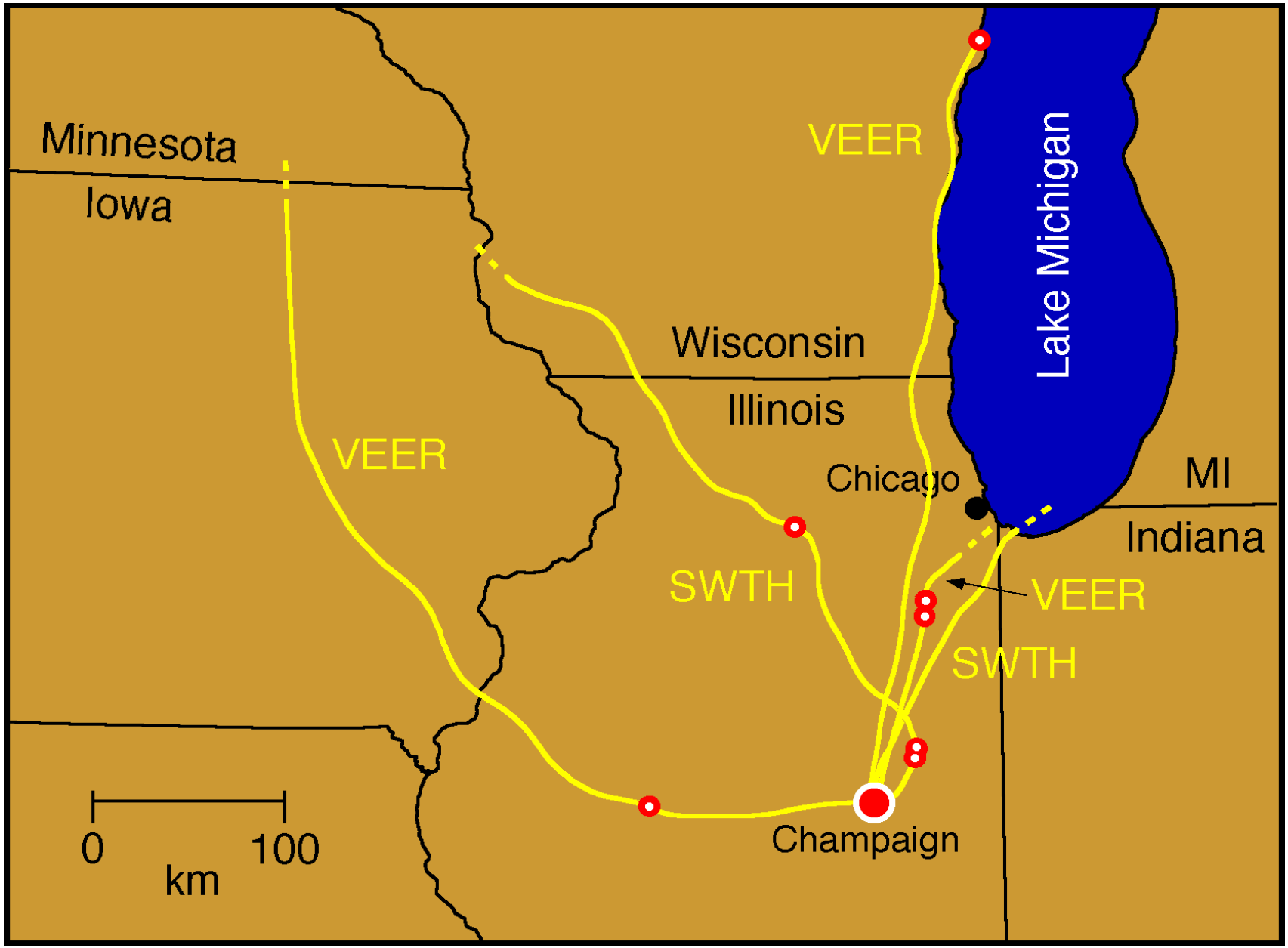


from: Diehl, R. H., R. P. Larkin, and J. E. Black. 2003. Bird migration around the Great Lakes on Doppler radar: implications for habitat conservation. Auk **120**:278-290.

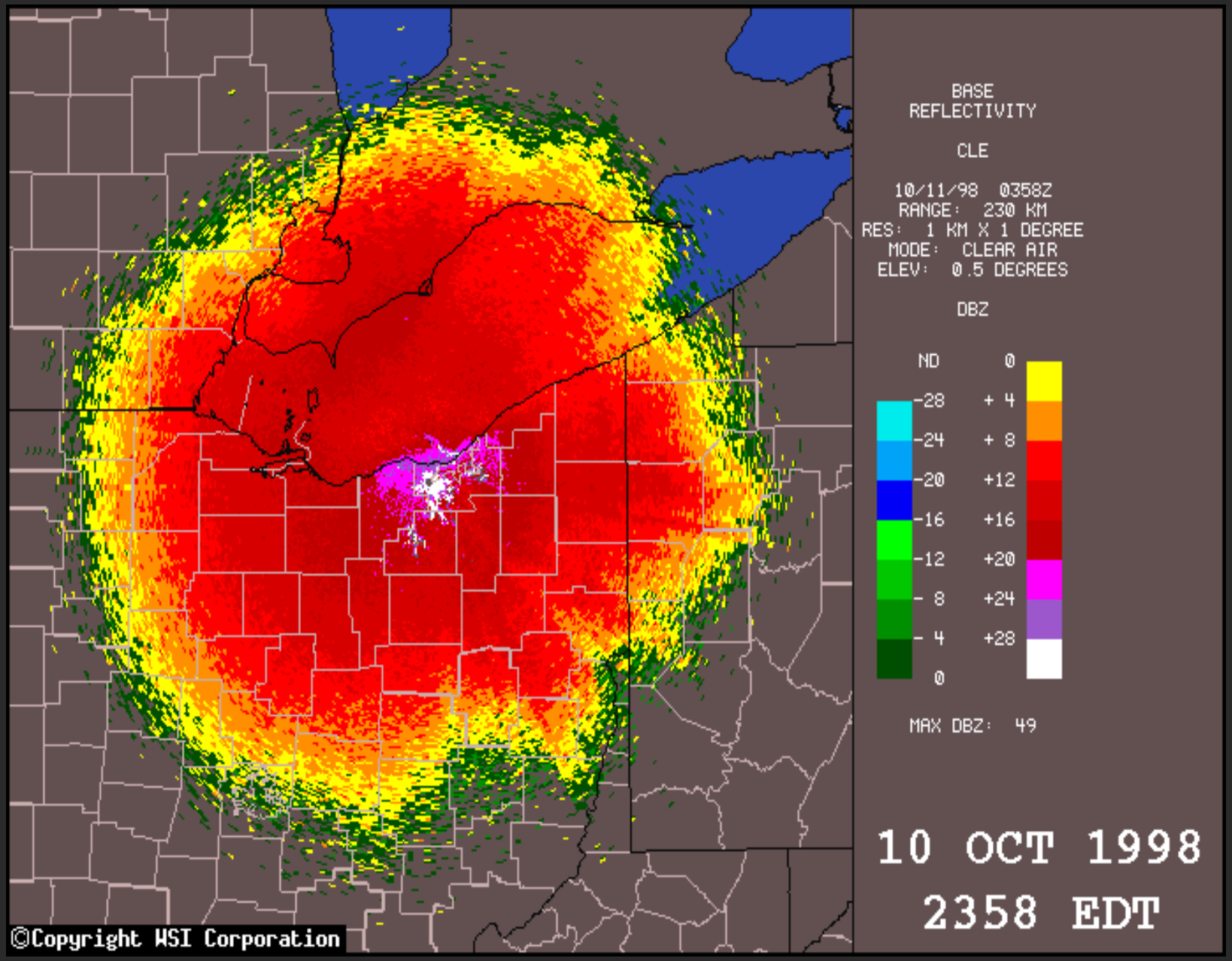
radio tracking



Bill Cochran
Robb Diehl
Arlo Raim
Deborah Zander
National Science Foundation



Diehl, R. H., and R. P. Larkin. 1998. Wing beat frequency of *Catharus* thrushes during nocturnal migration, measured via radio telemetry. Auk **115**:591-601.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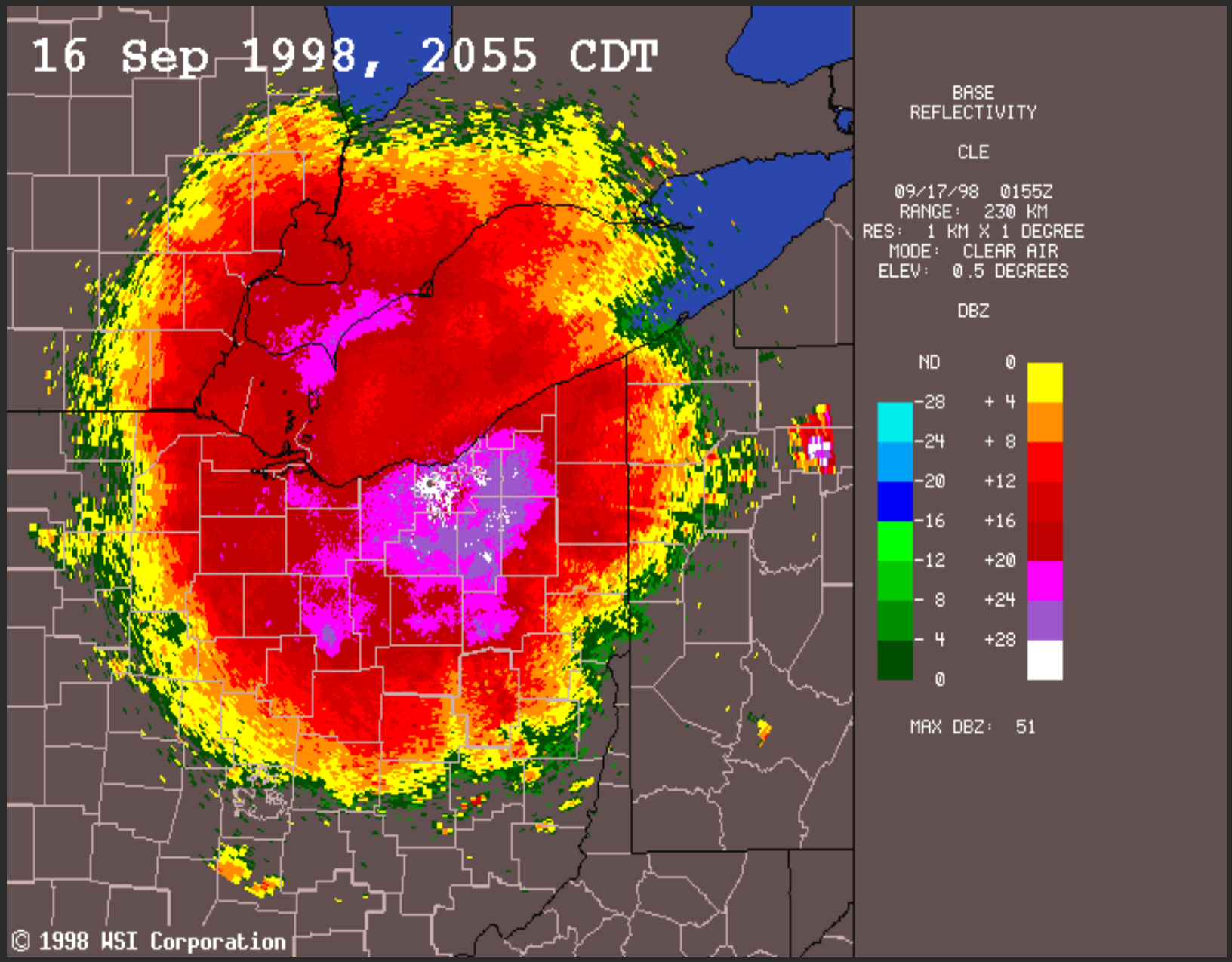
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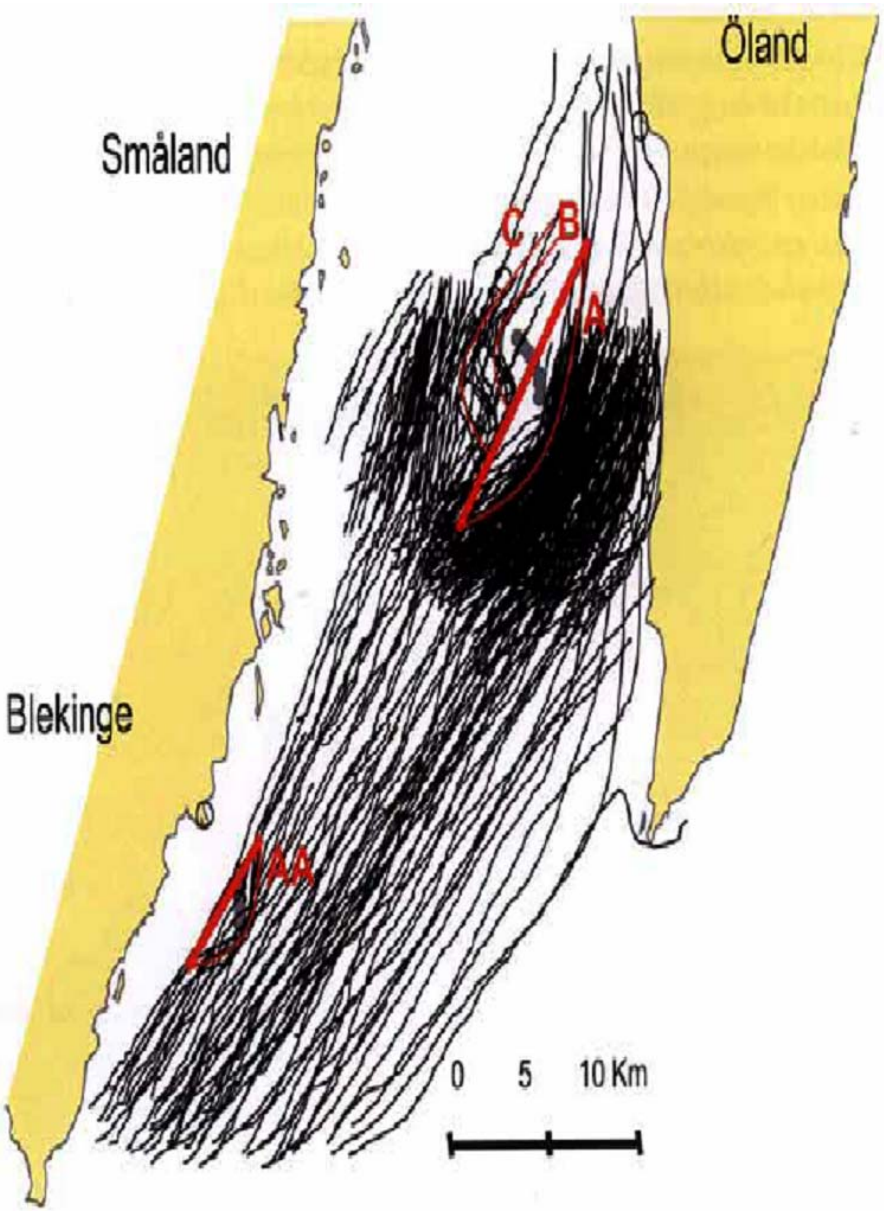
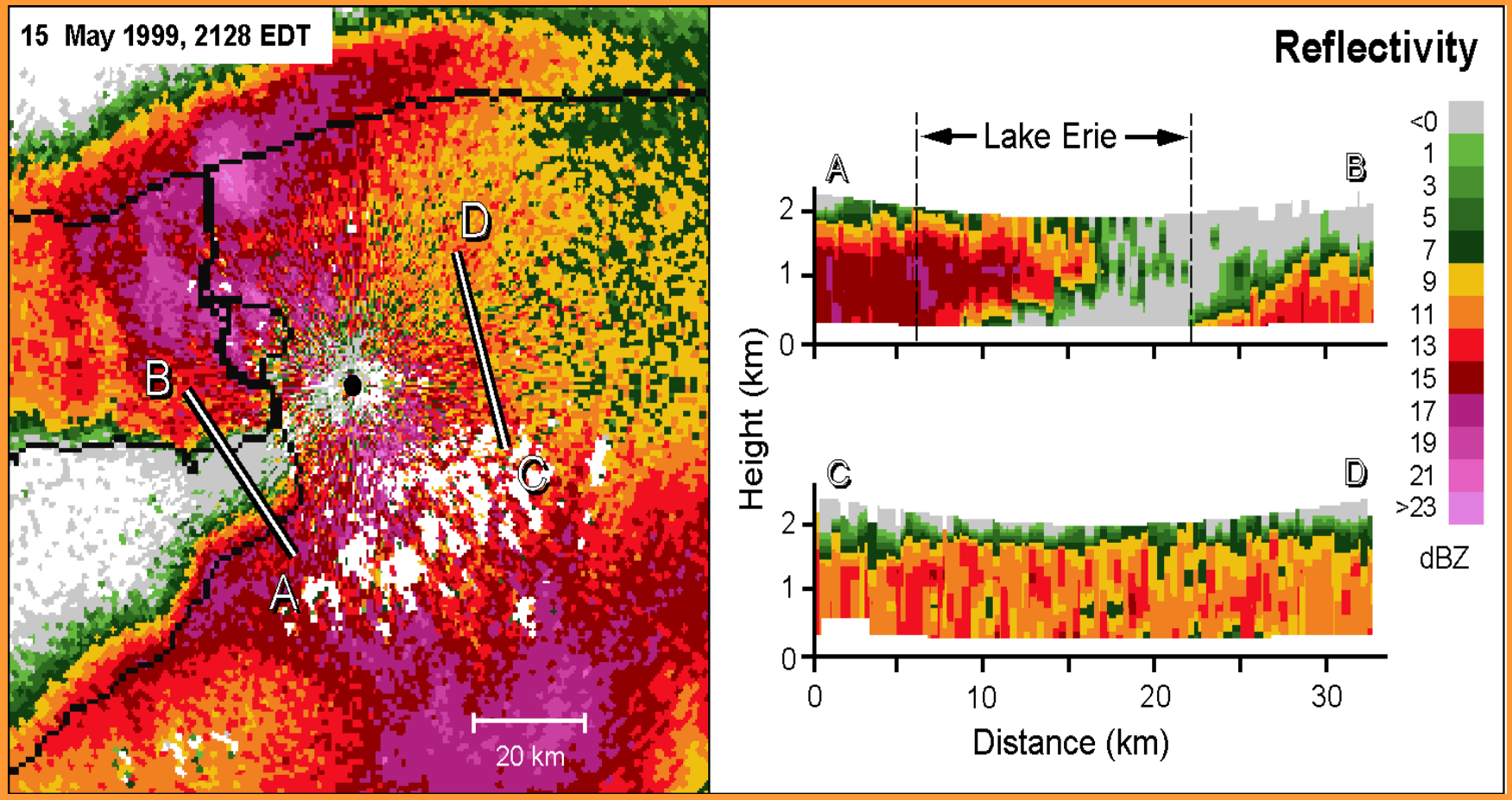
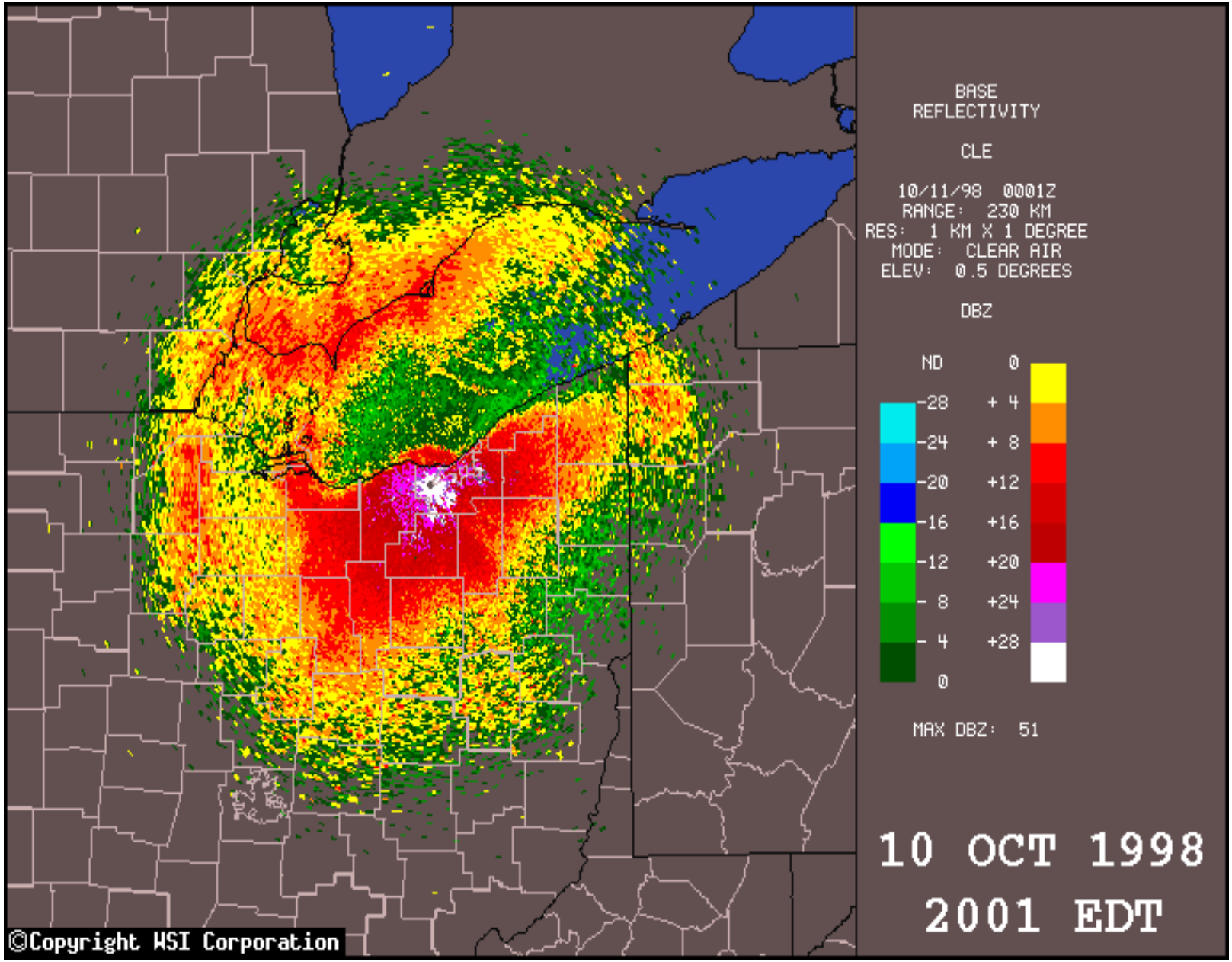


Leif Nilsson,
Department of
Animal Ecology,
University of Lund

height



Robb Diehl
John Black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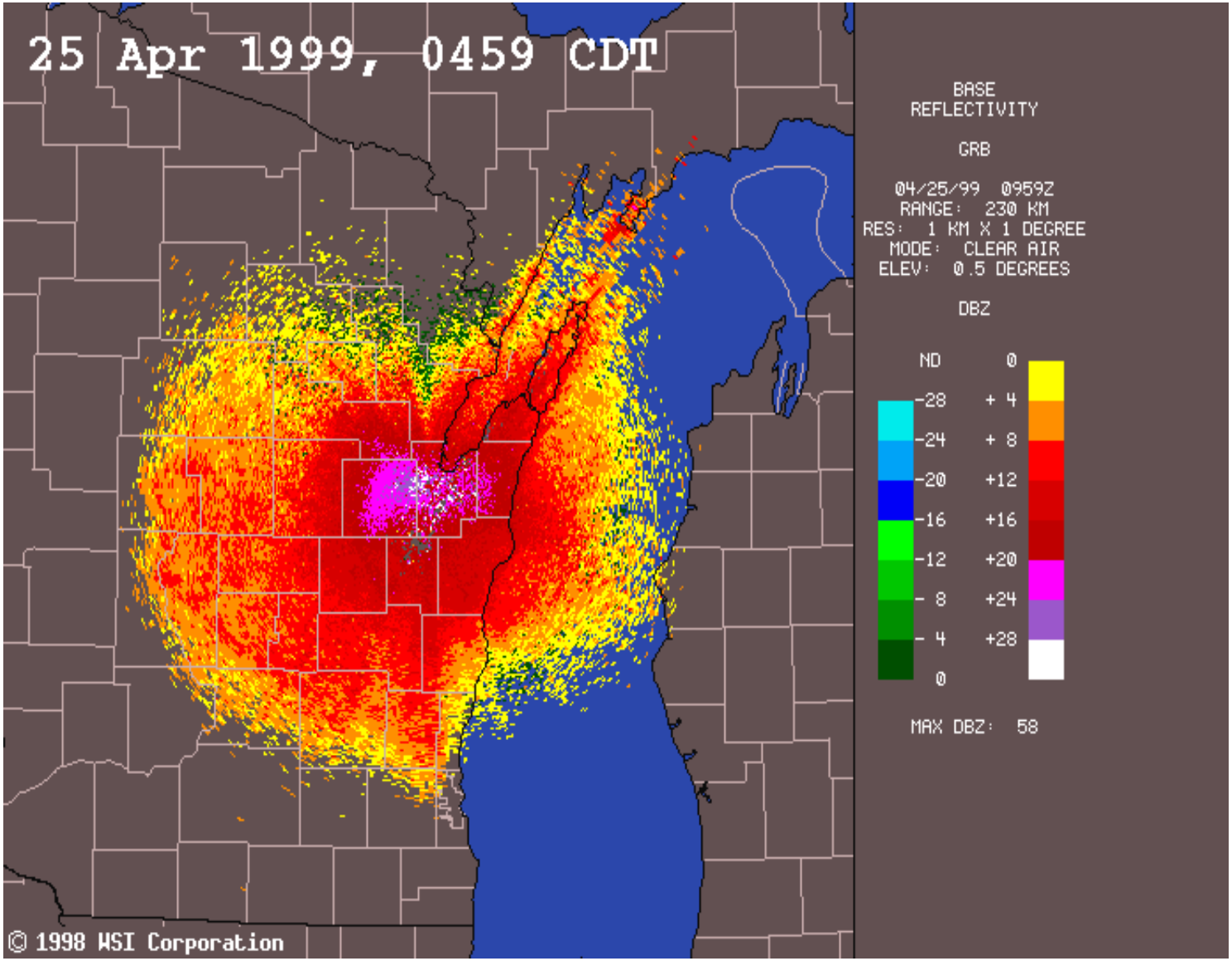
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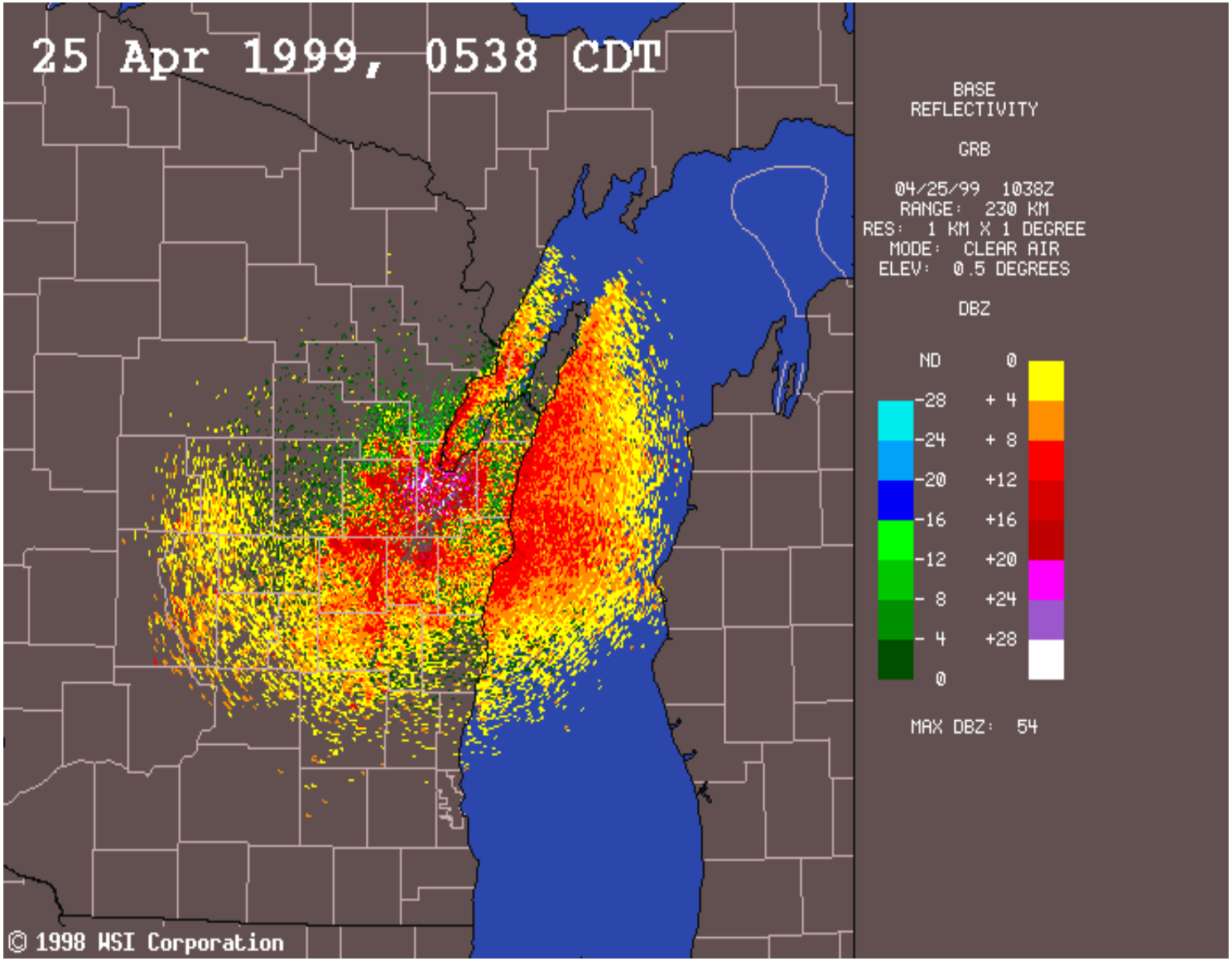
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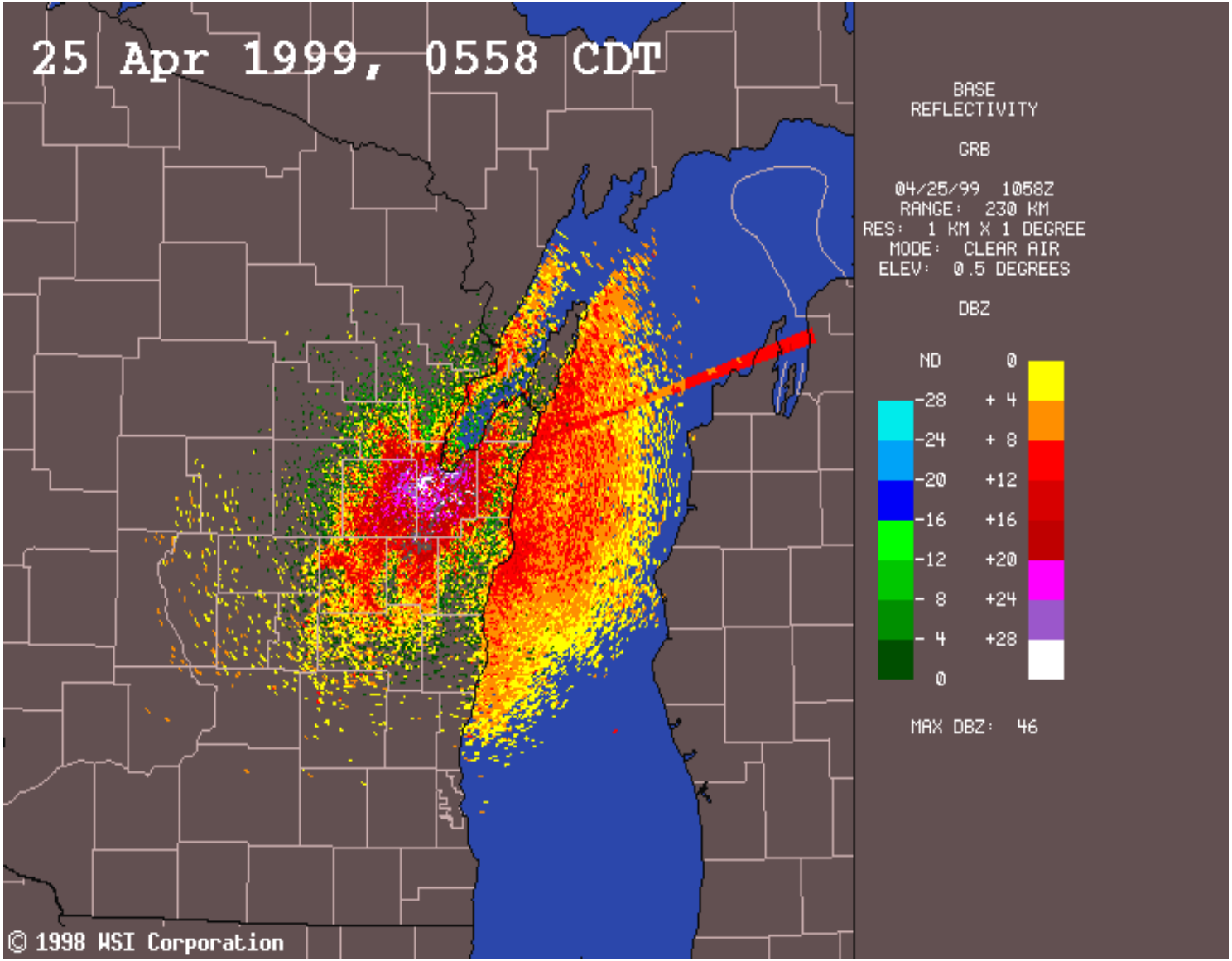
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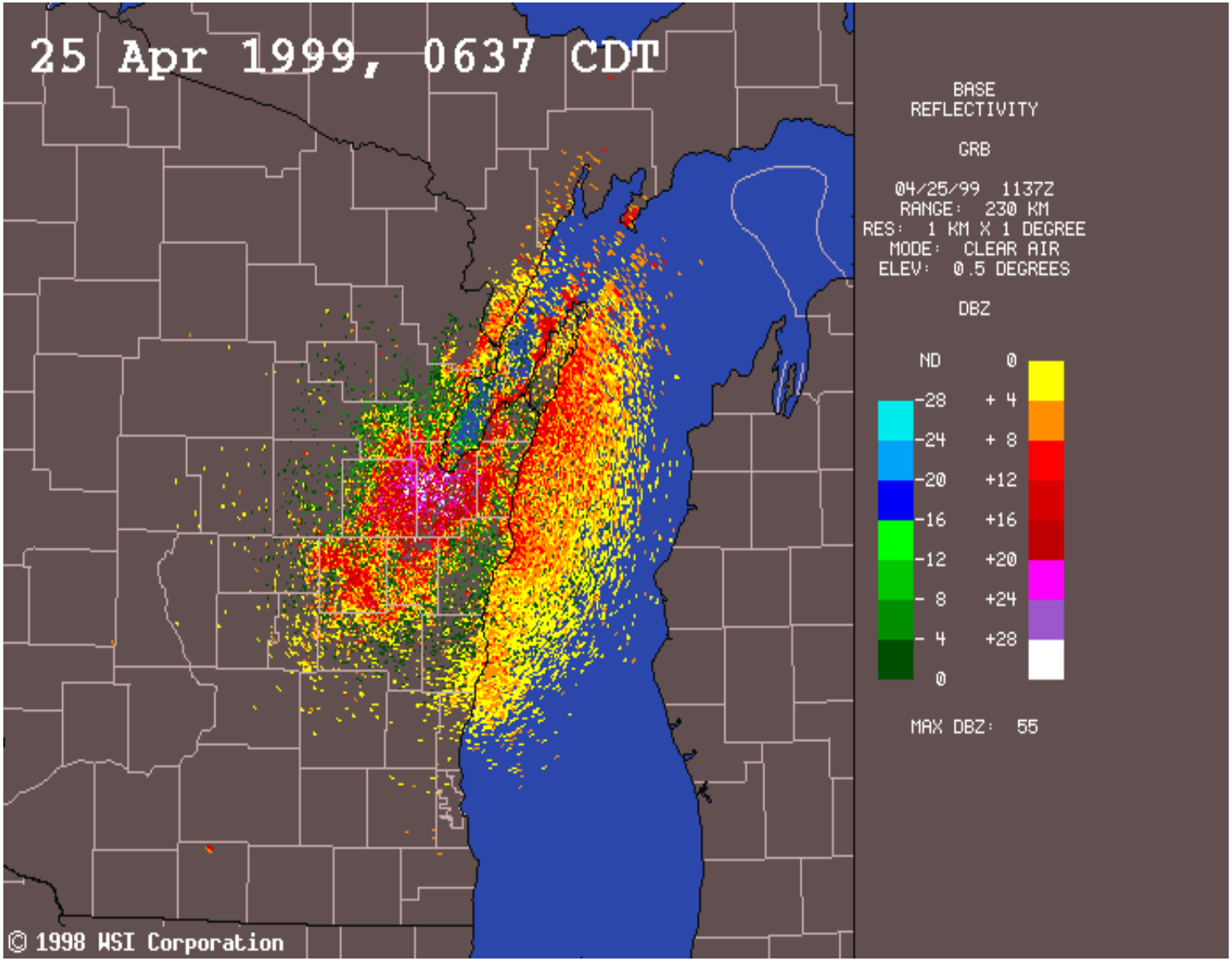
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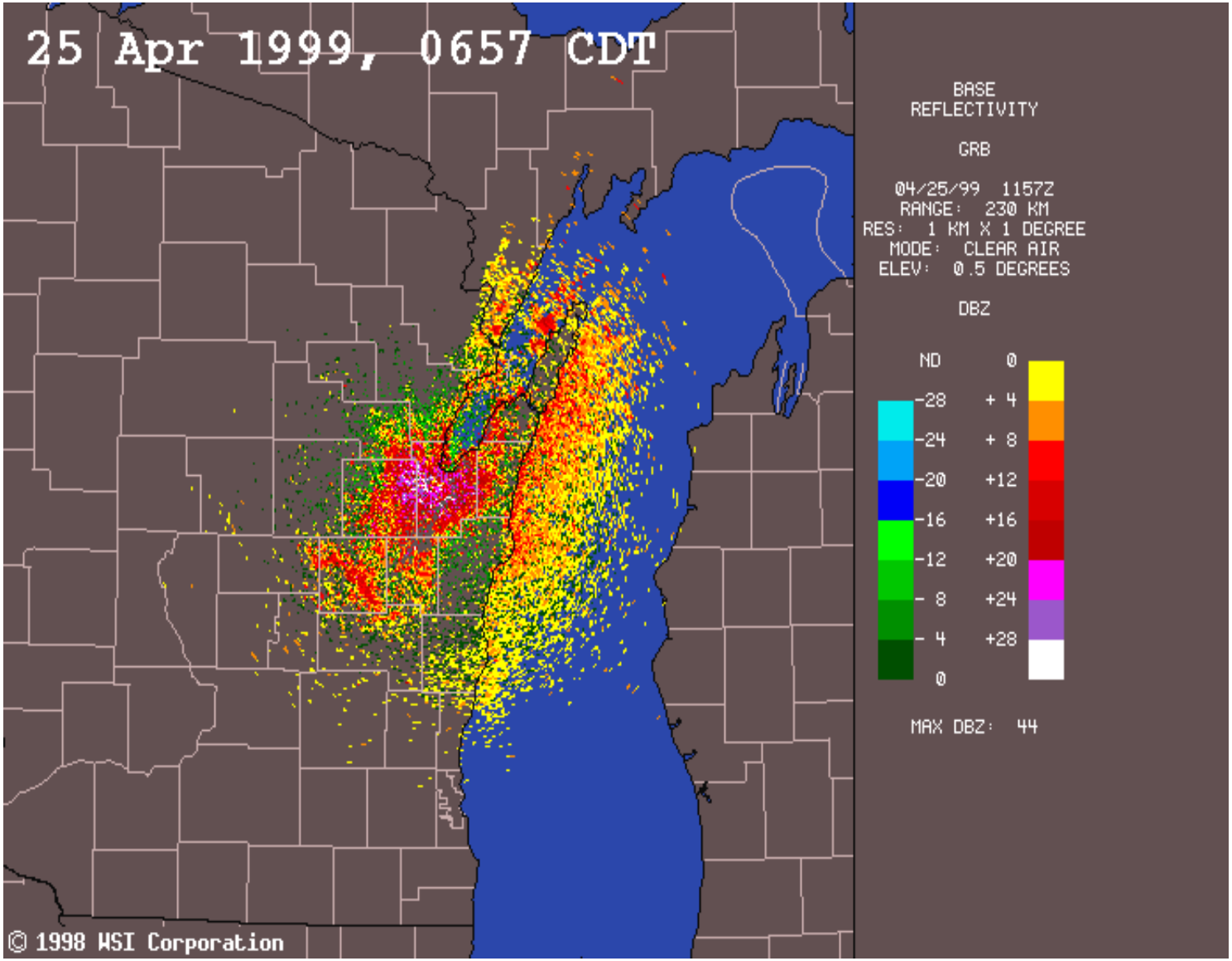
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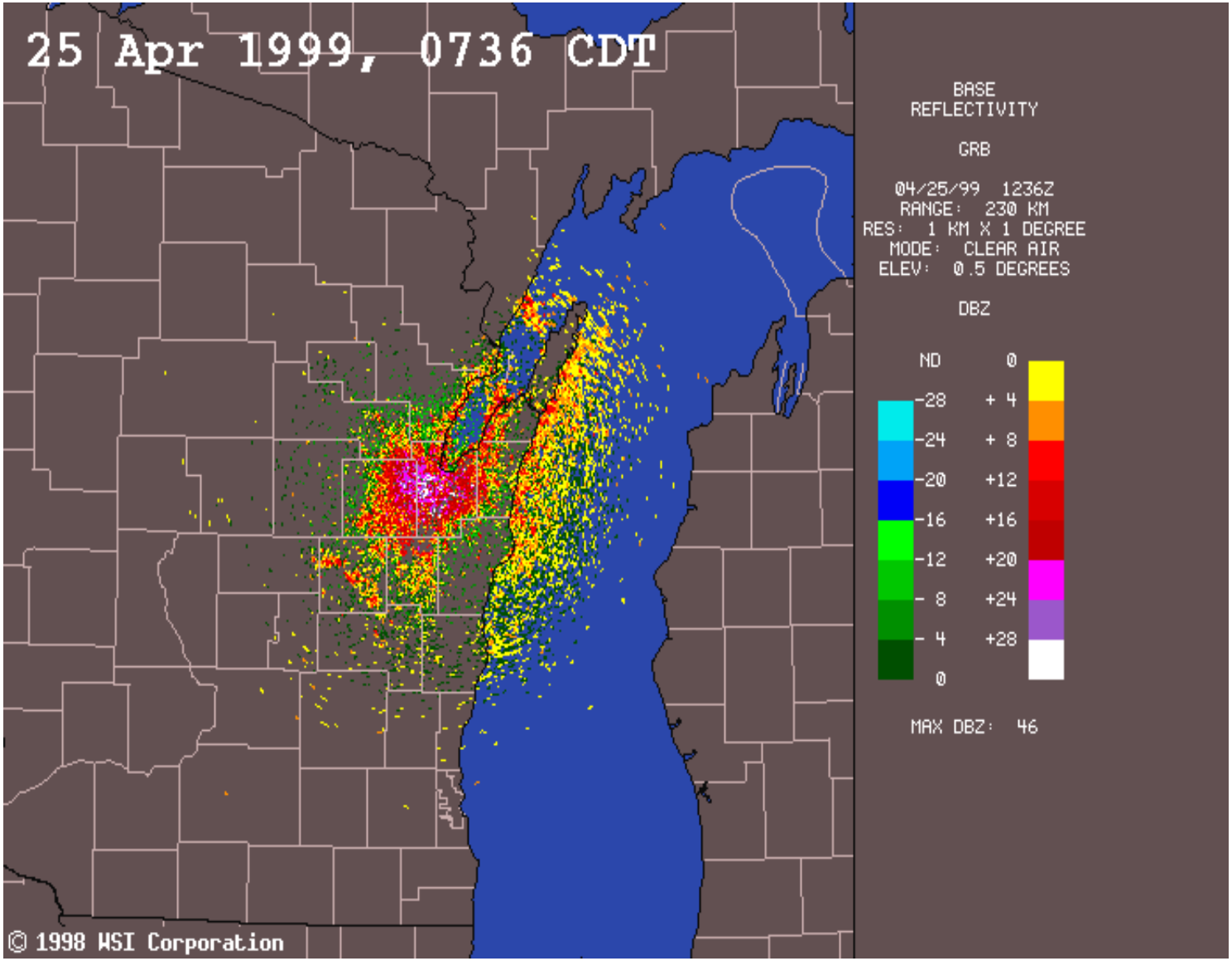
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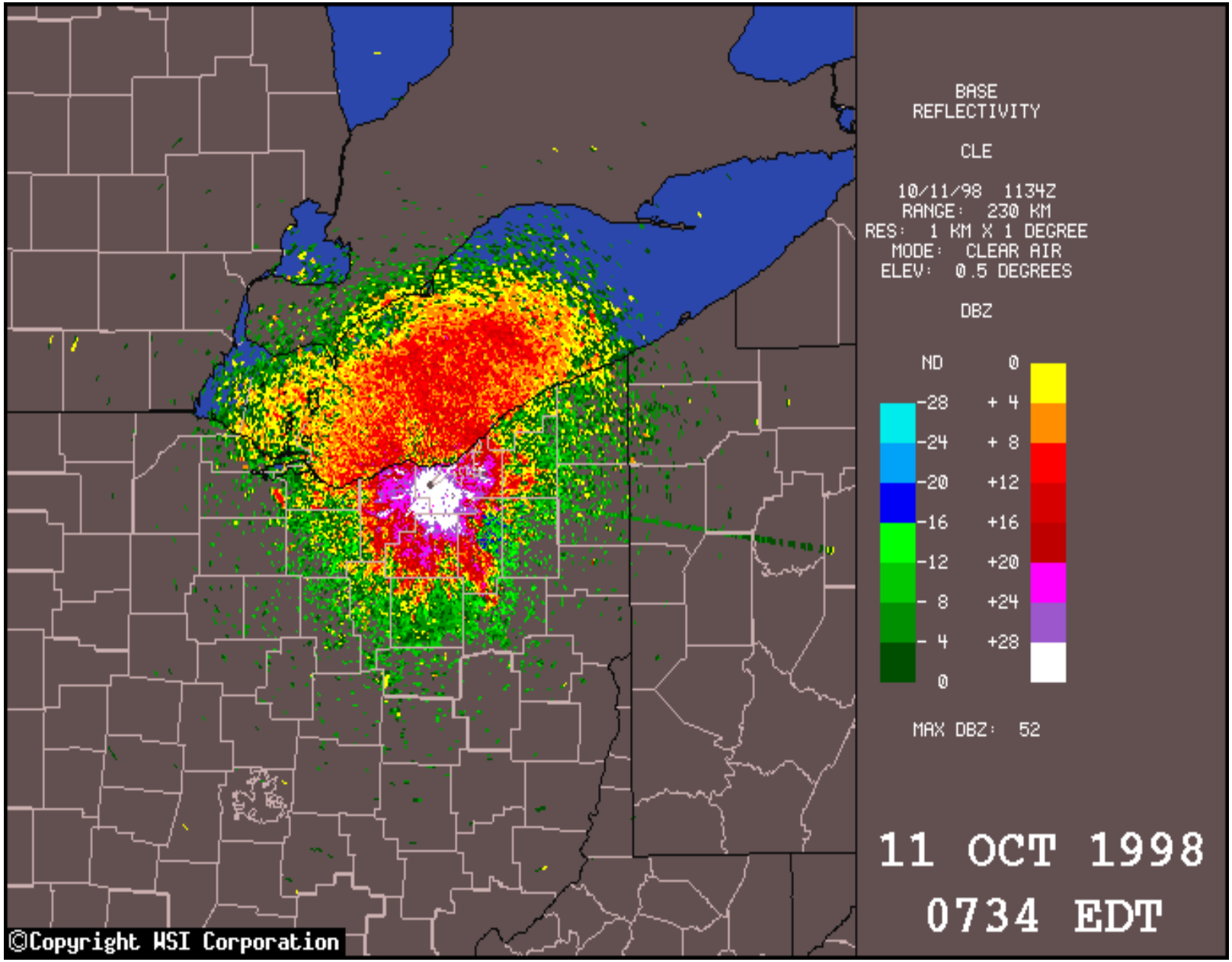
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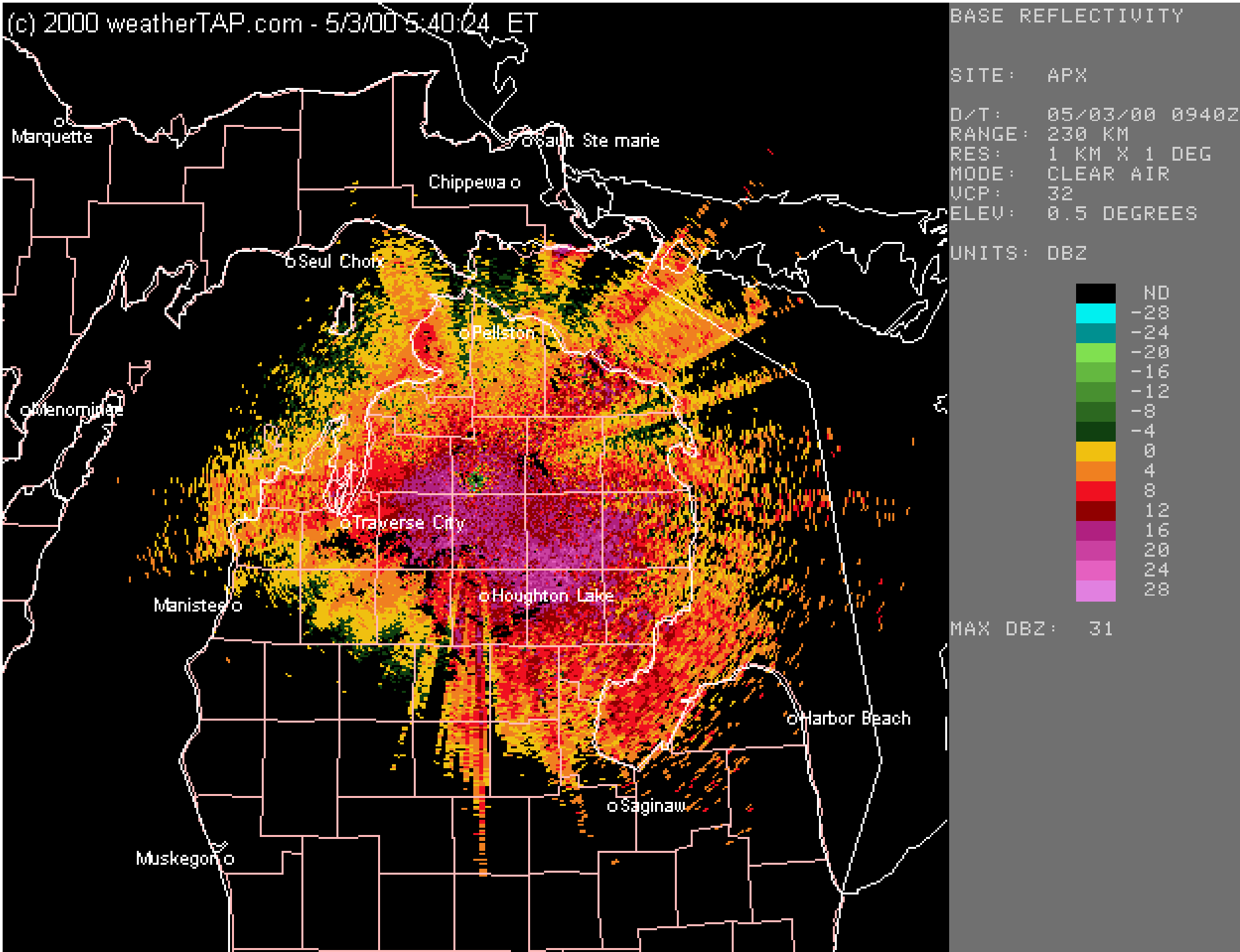
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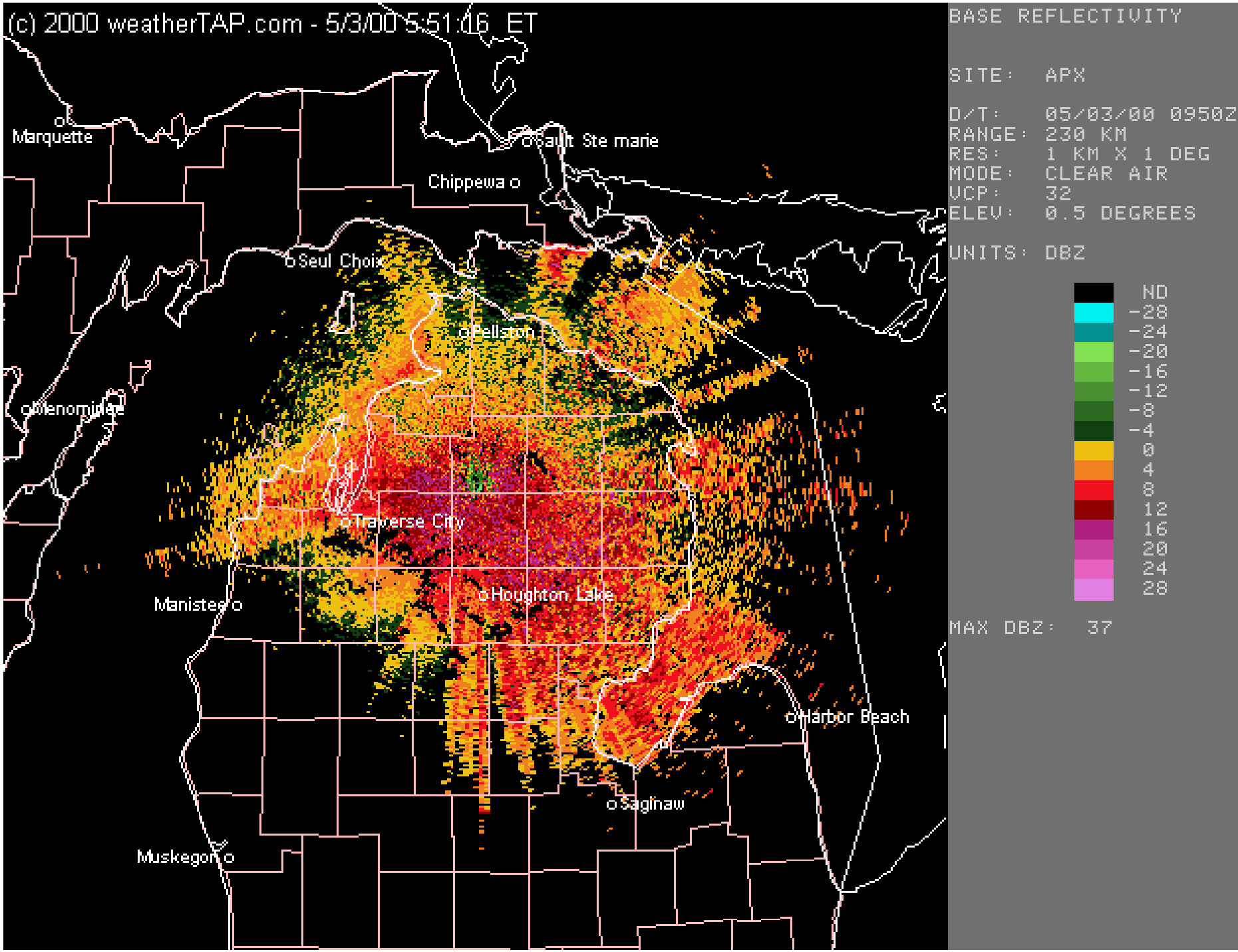
Manistee
Harbor Beach
Saginaw
Muskegon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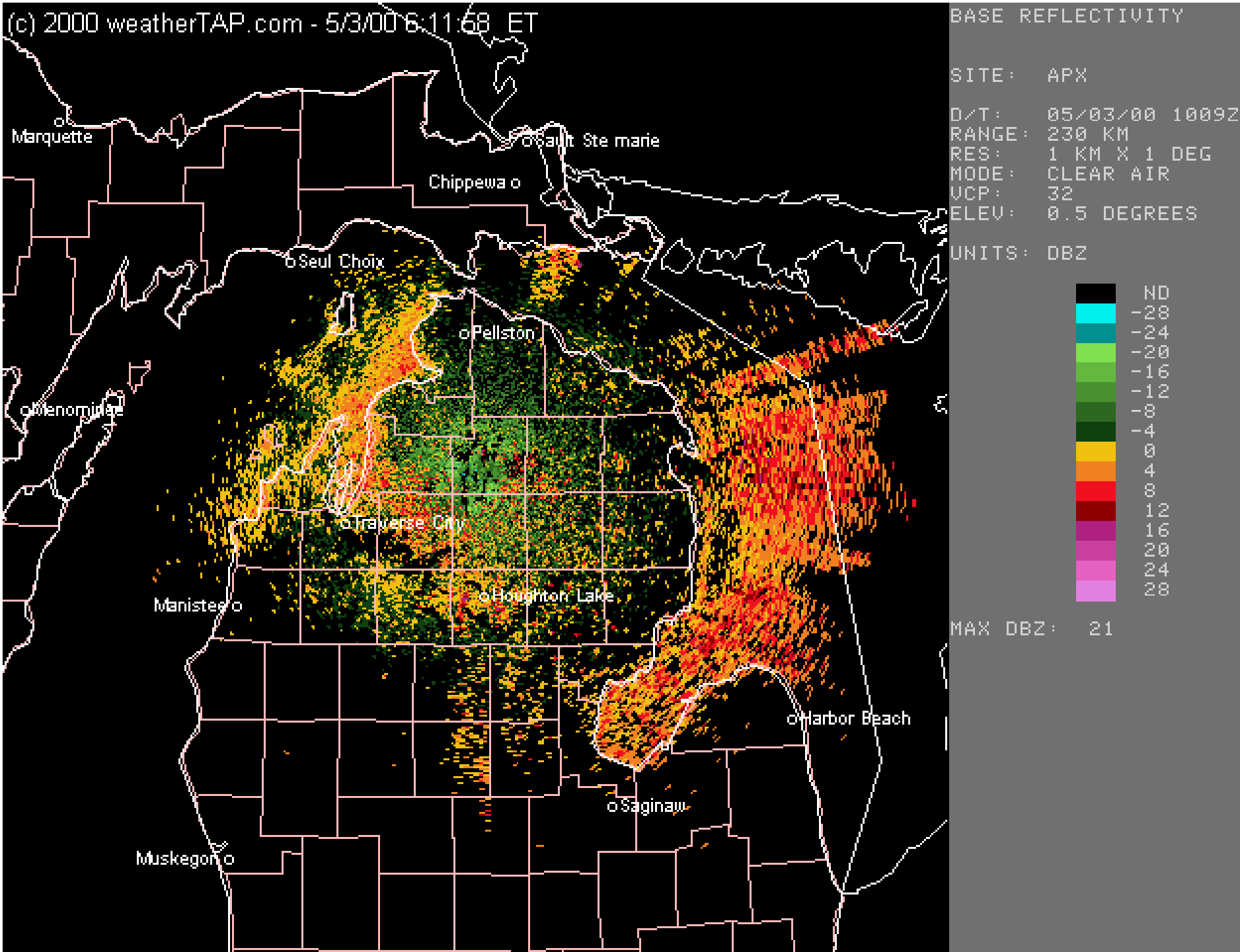
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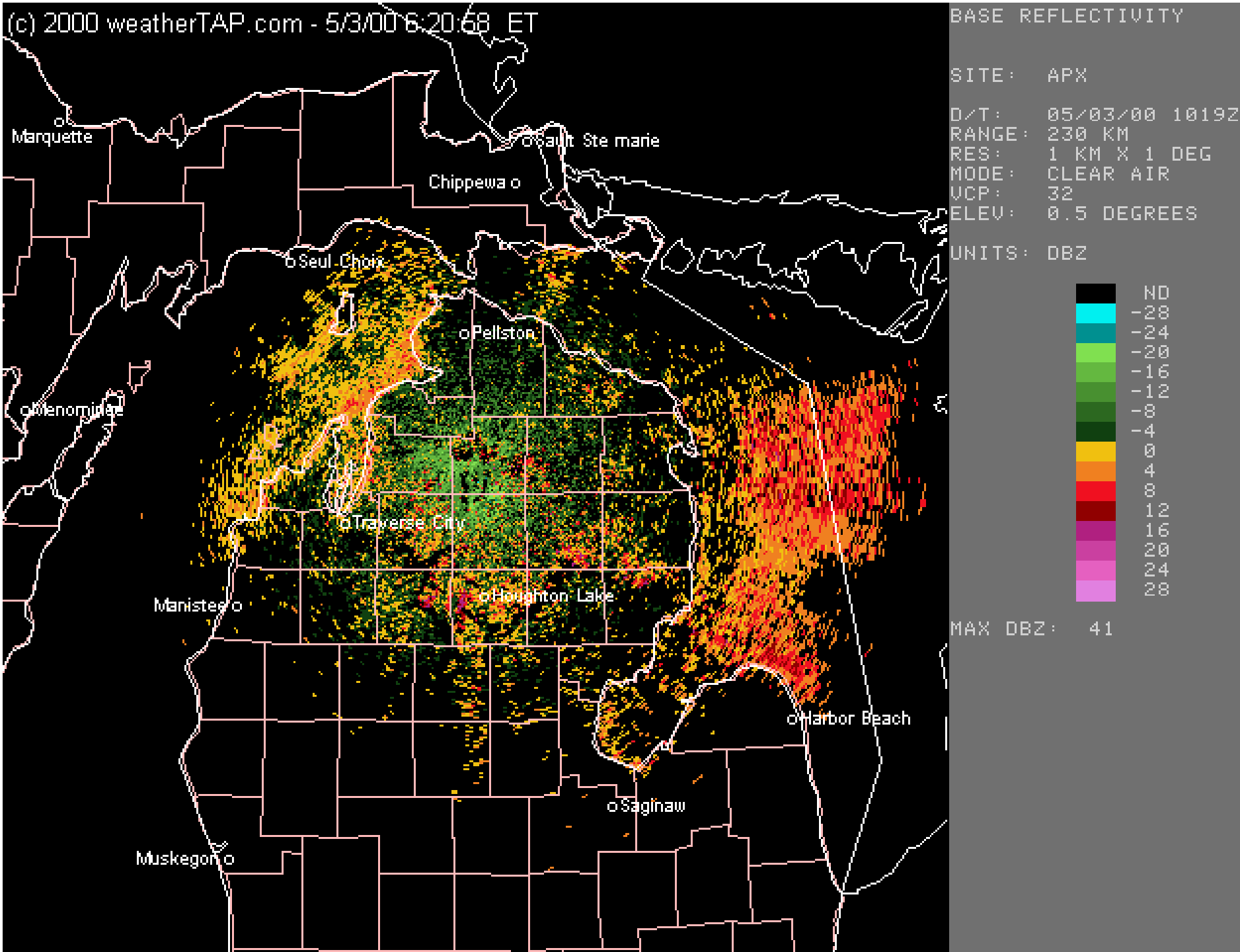
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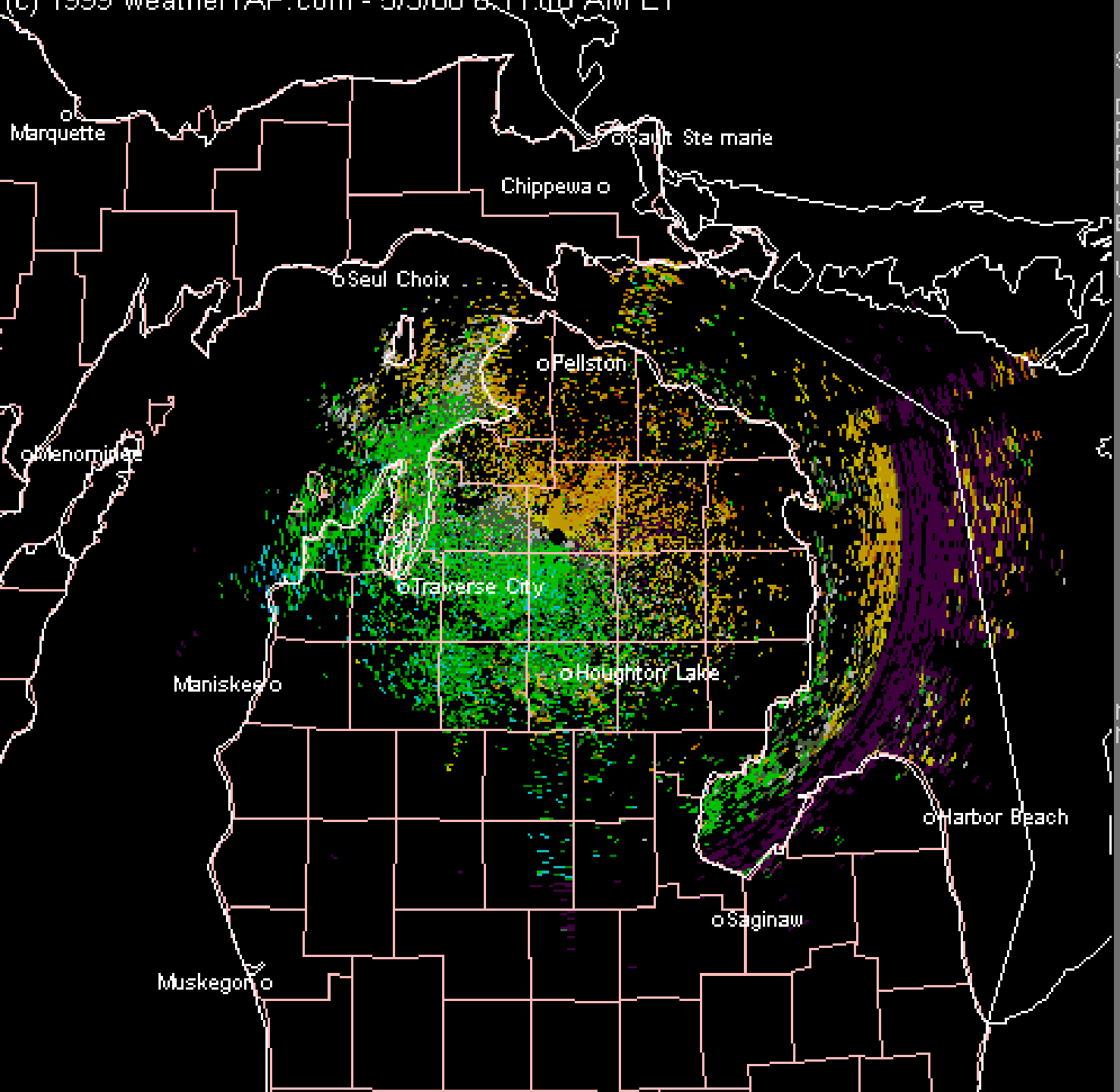

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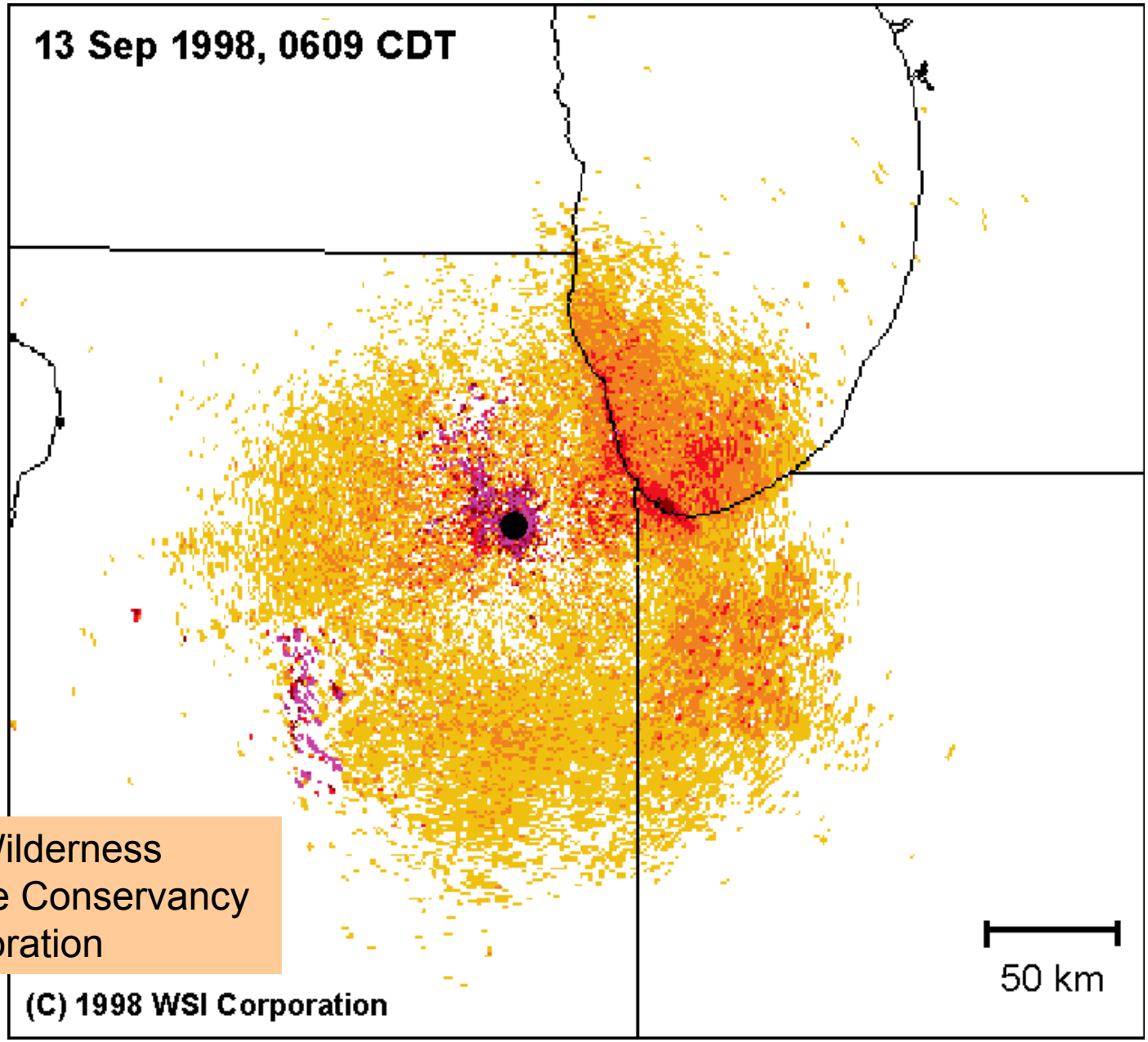

Chicago Wilderness
The Nature Conservancy
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