Evidence of Regional Warming during the 20th Century in Alpine and Subalpine Lakes in the Western United States

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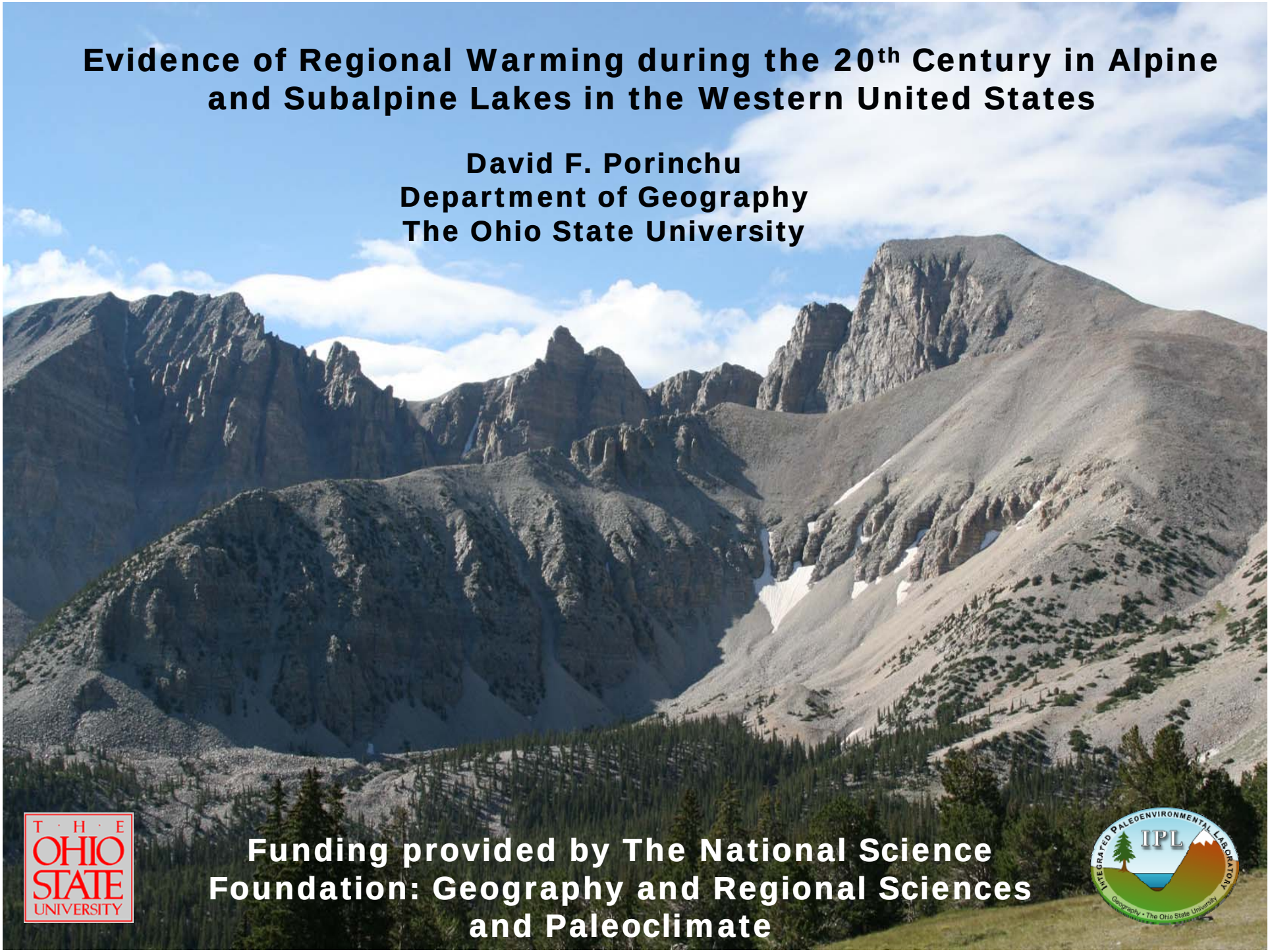

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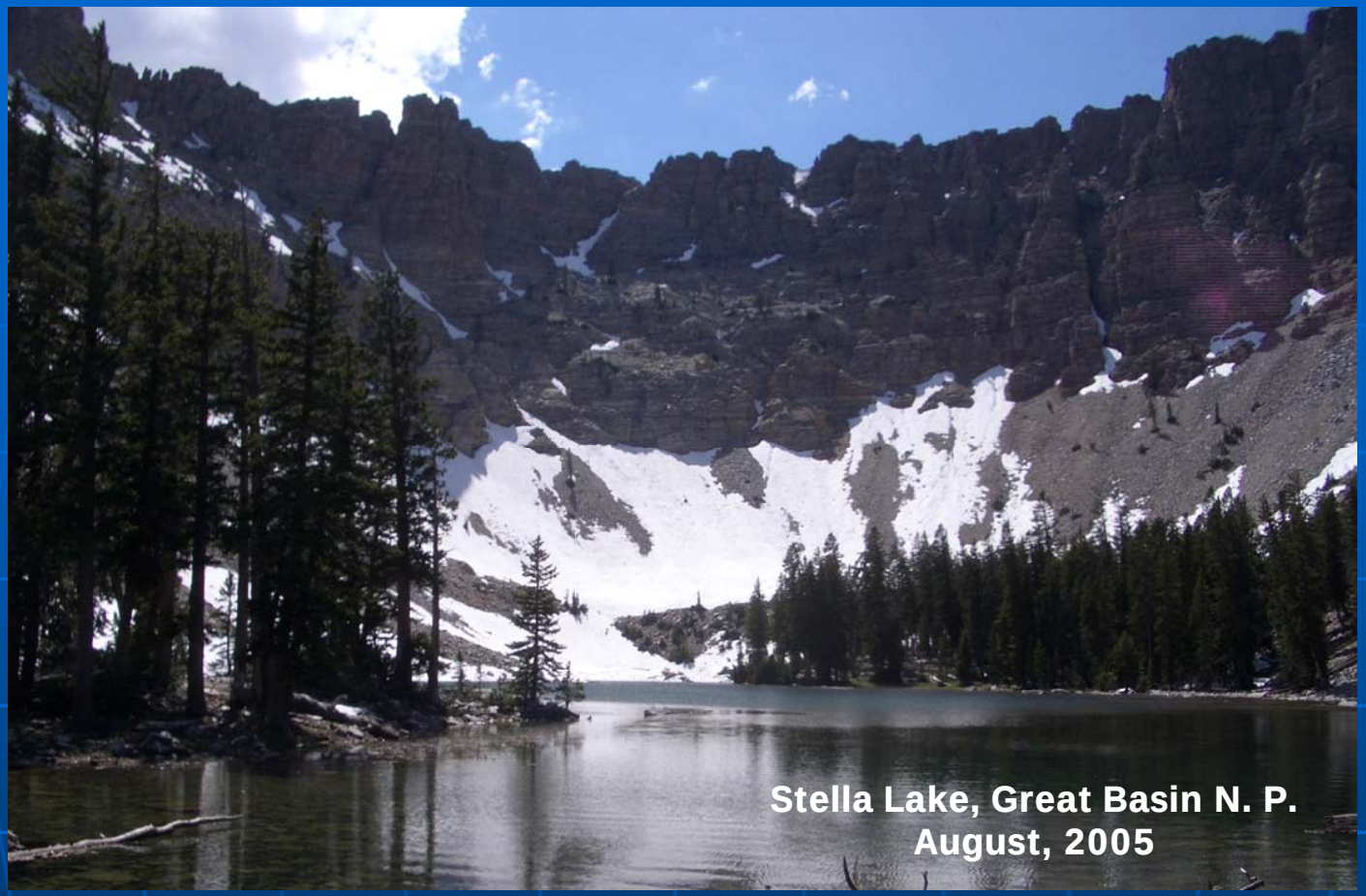

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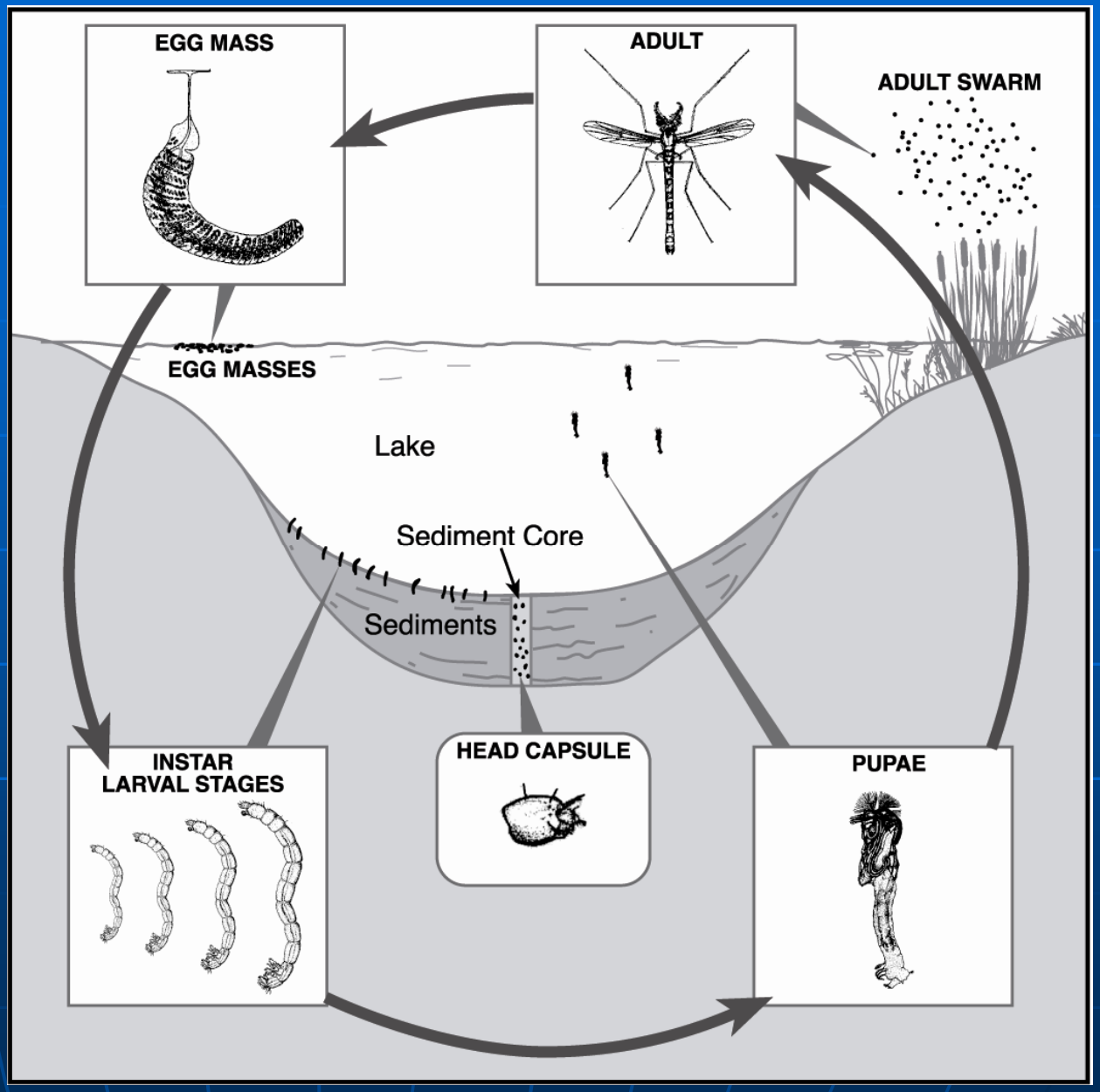
Amy Bloom: Geology-Geography, Illinois State University
Glen MacDonald: Geography and OBEE, UCLA

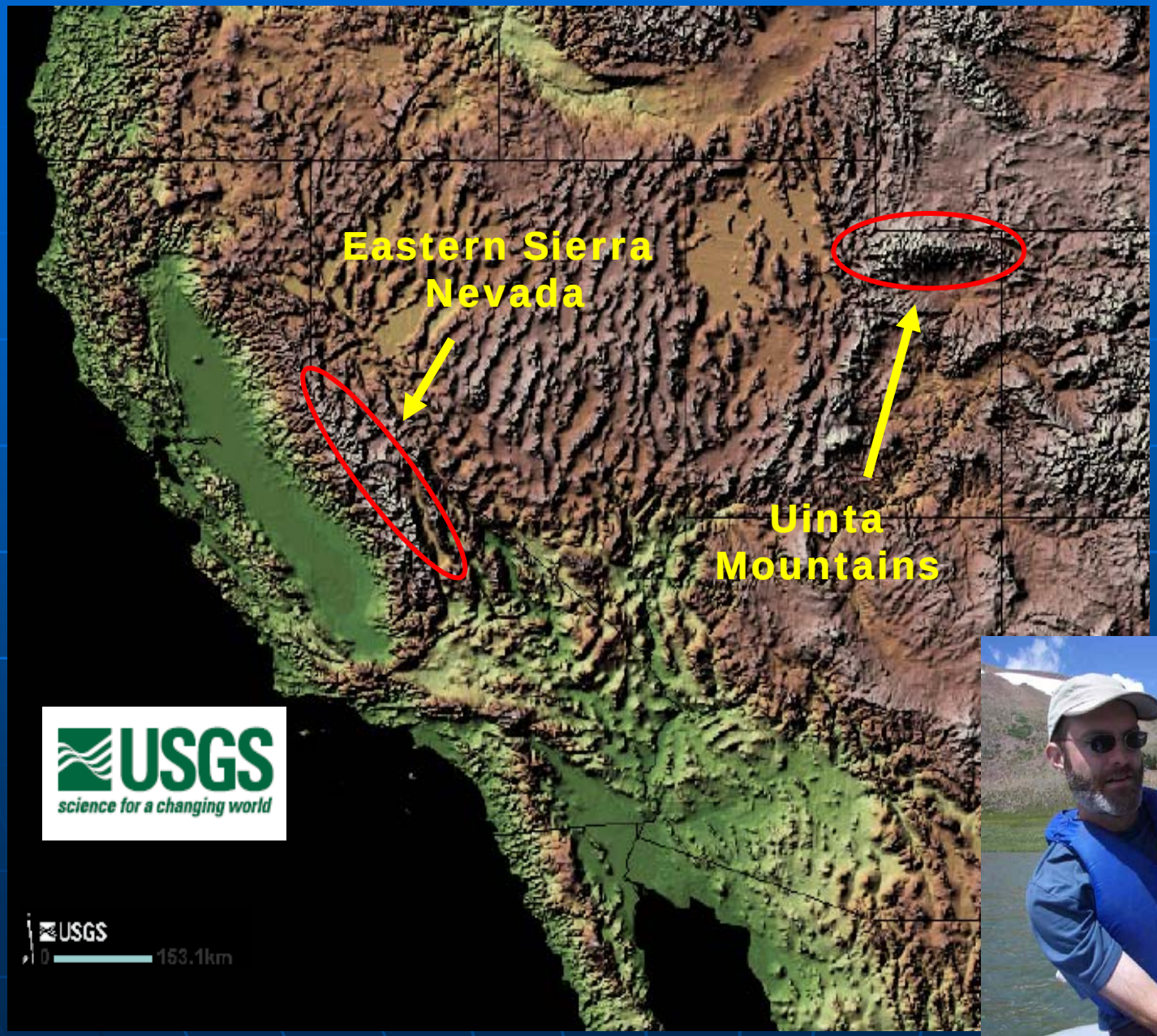
Dicrotendipes

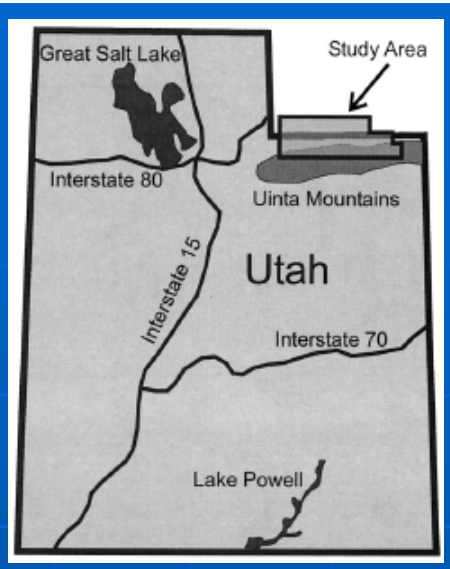
Heterotrissocladius



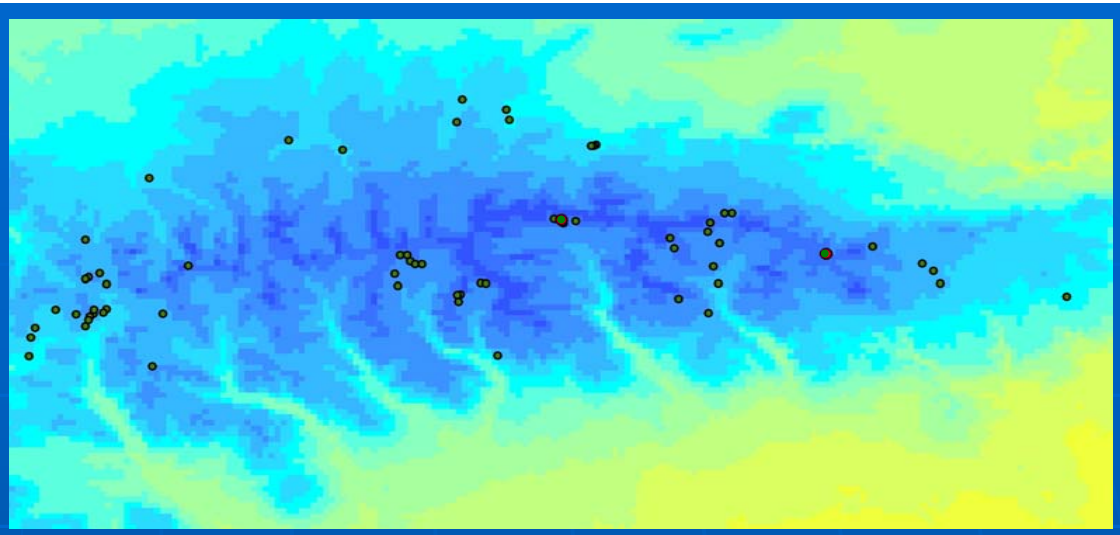
Porinchu and MacDonald, 2003

Calibration Set Development

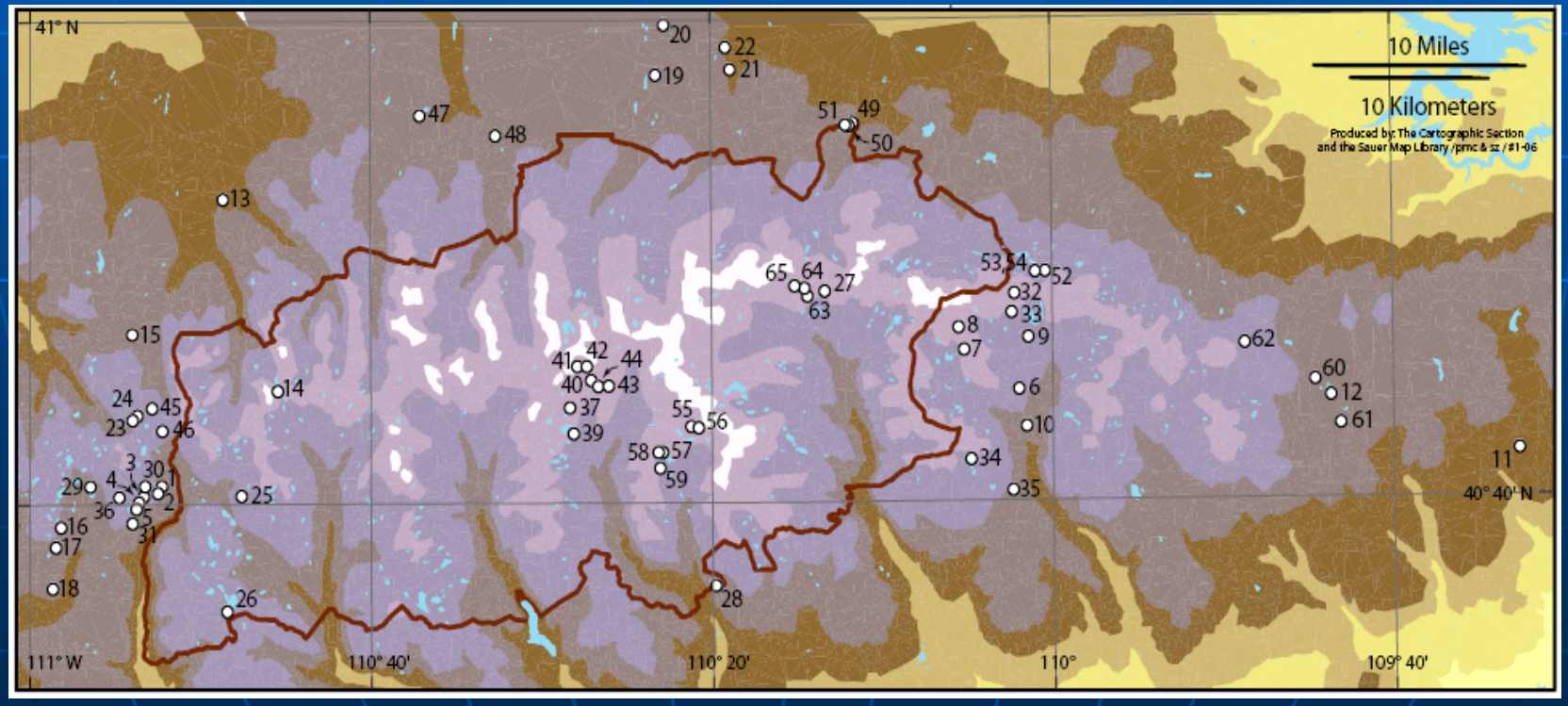




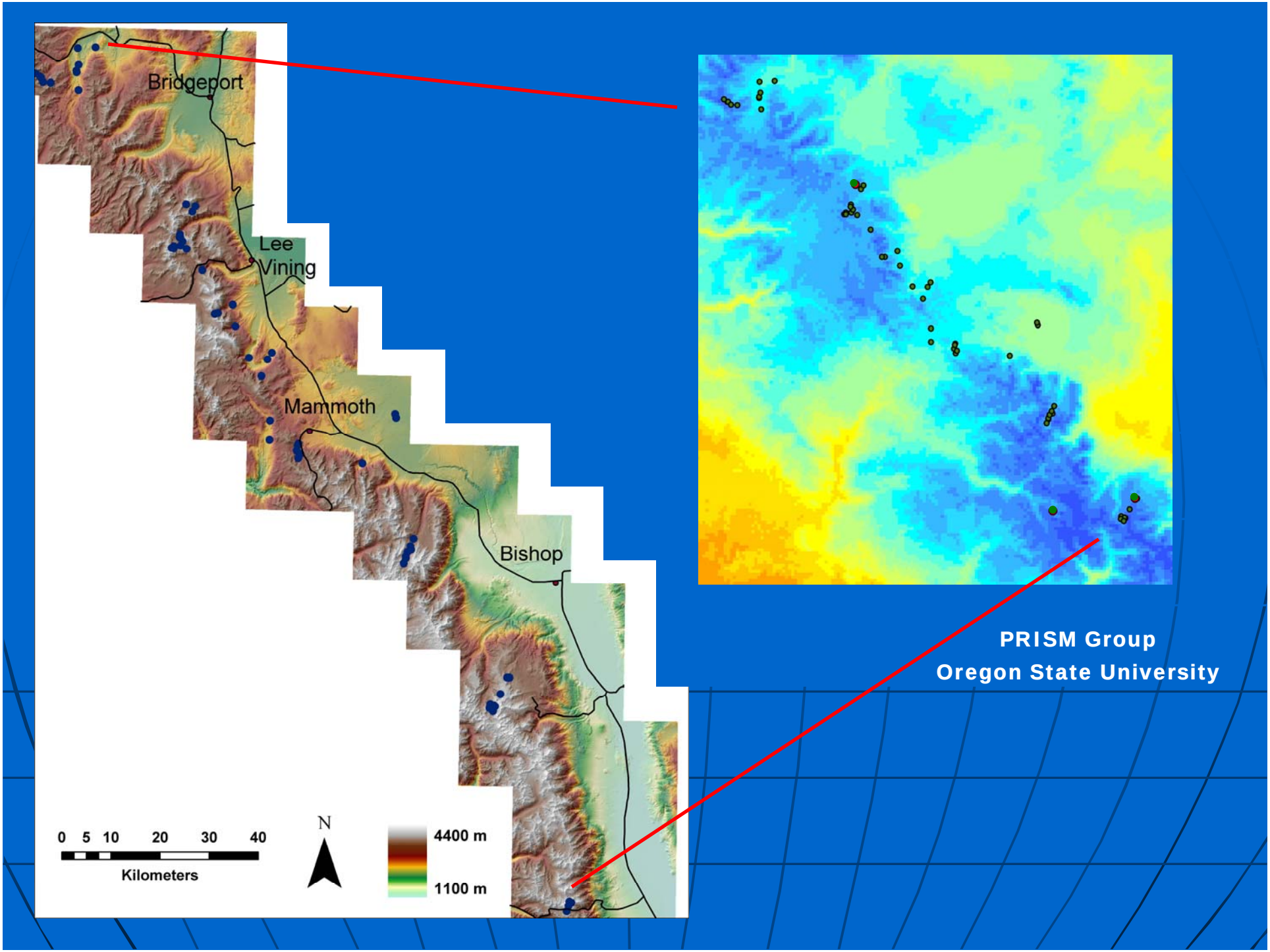
Munroe and Mickleson (2002)



PRISM Group, Oregon State University
(http://prism.oregonstate.edu/)



Porinchu et al. (2007b)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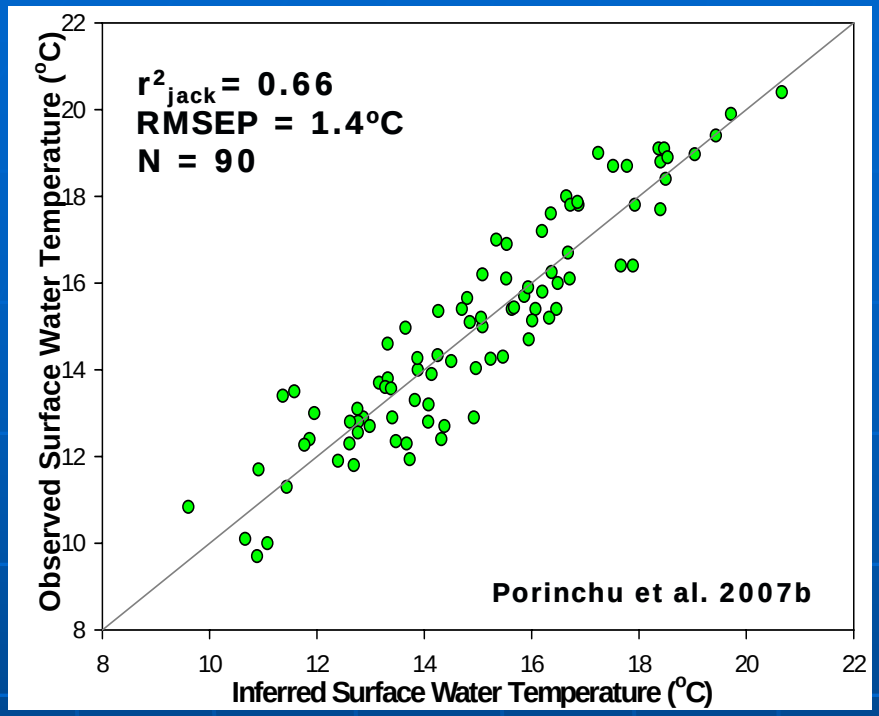
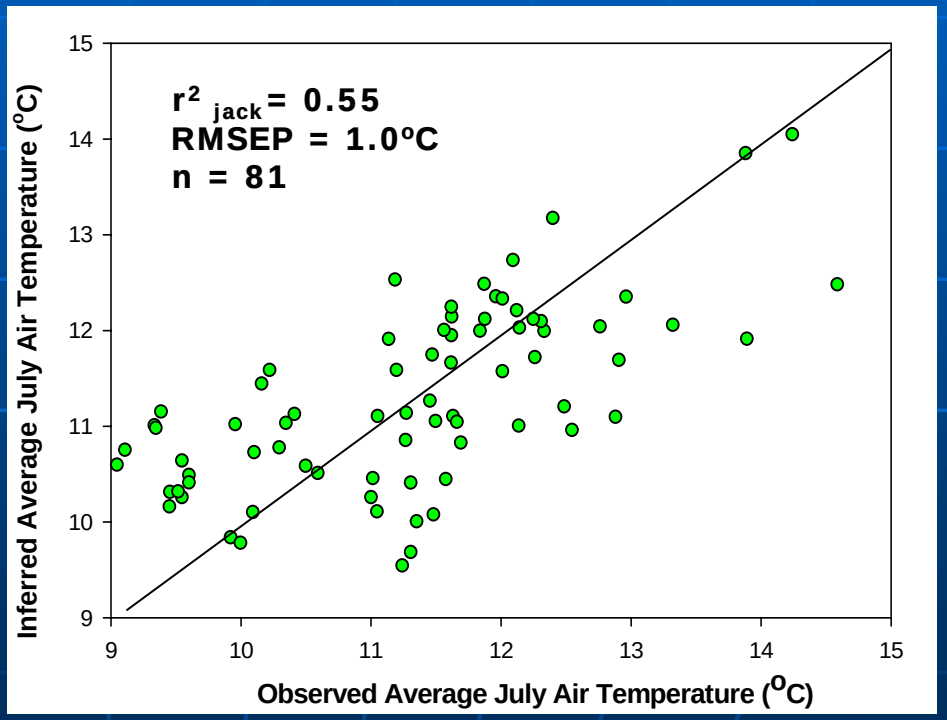
0 5 10 20 30 40
Kilometers
N
4400 m
1100 m
PRISM Group
Oregon State University

Surface Water Temperature Inference Model

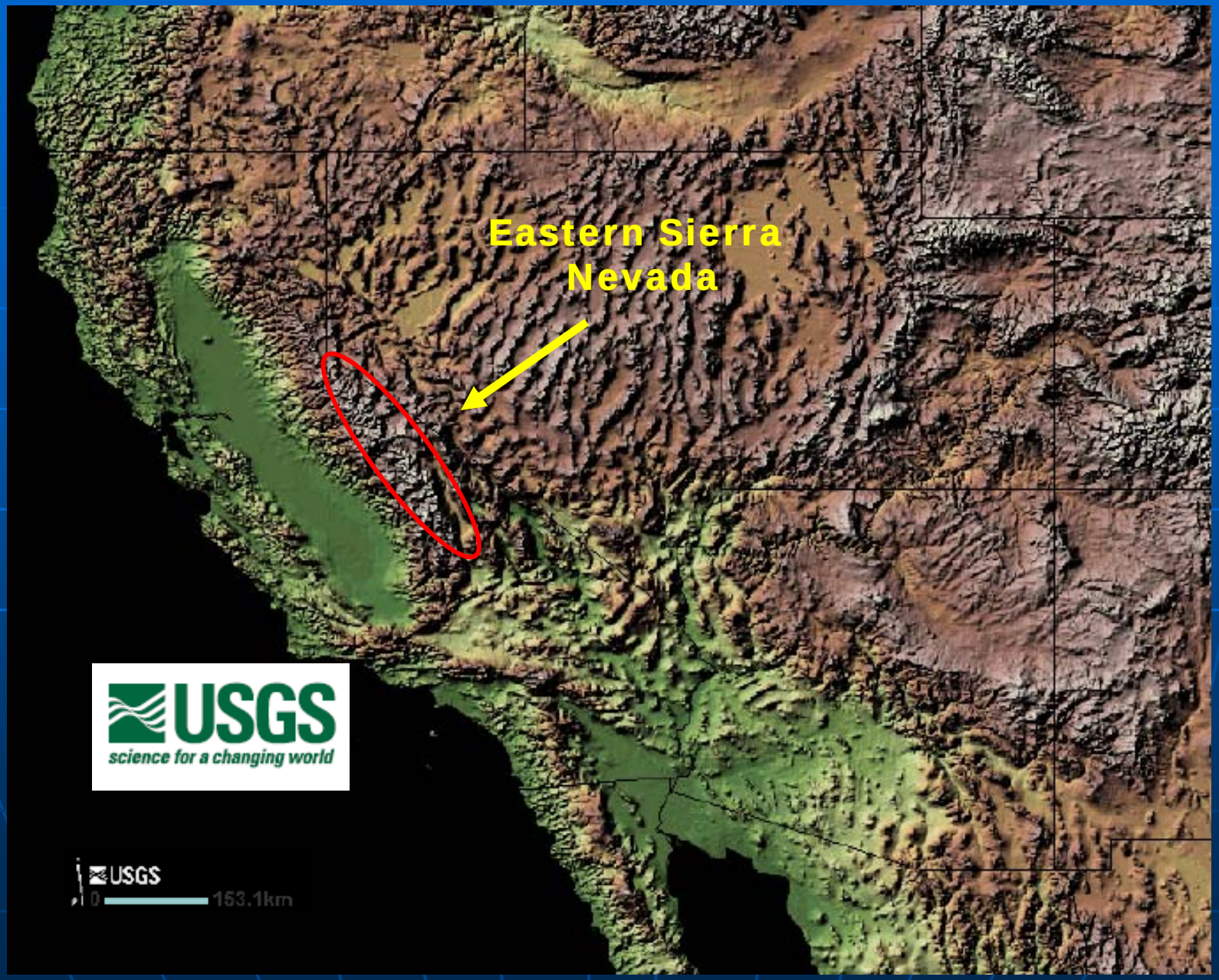


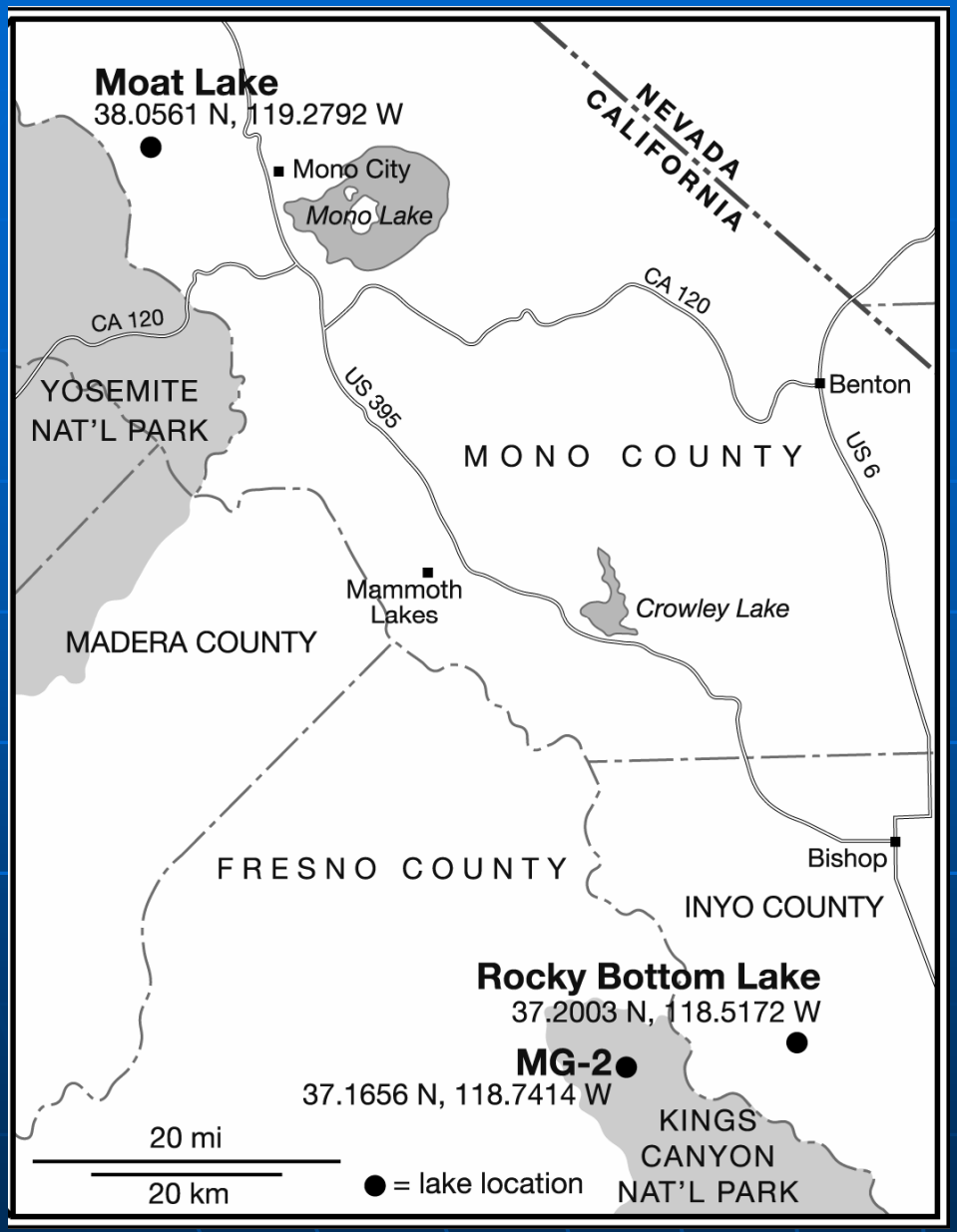
Average July Air Temperature Inference Model



Based on data available from the PRISM Group, Oregon State University (http://prism.oregonstate.edu/)

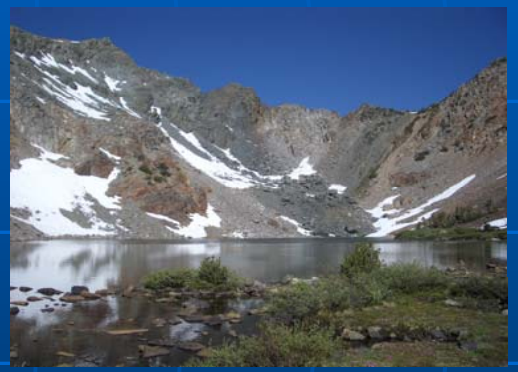
Application of Surface Water Temperature Inference Model





Porinchu et al., 2007a

MG-2

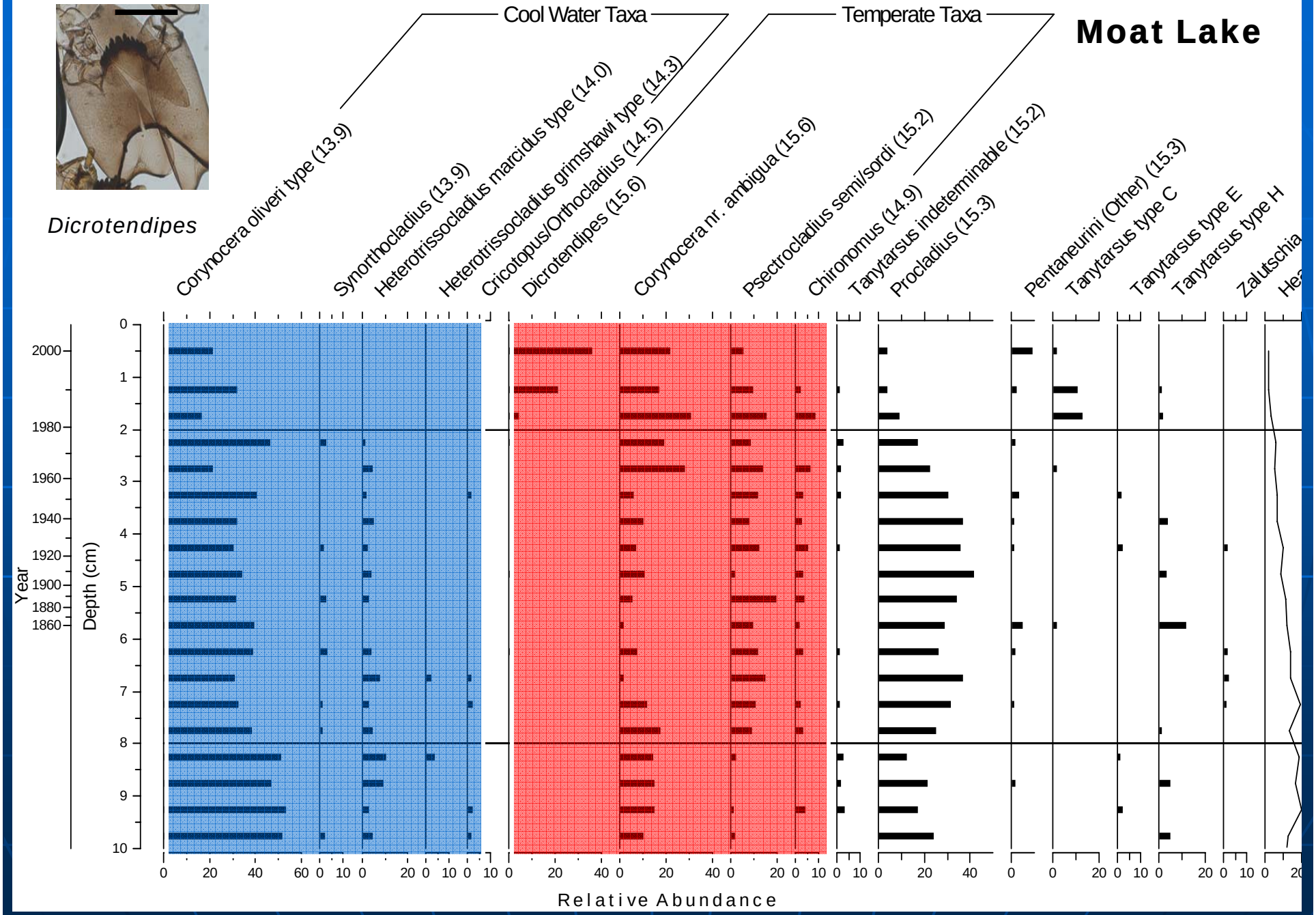


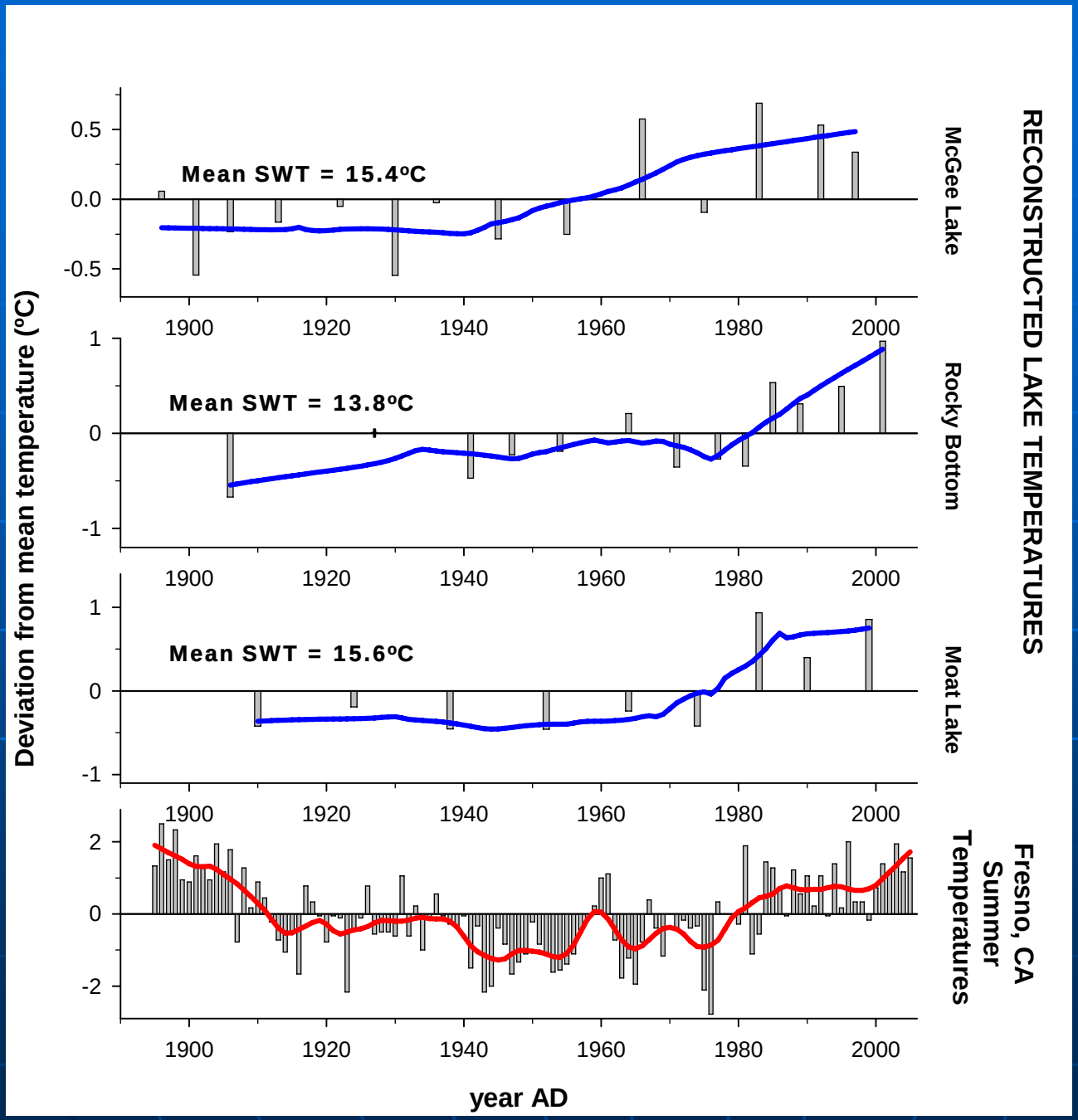
Moat Lake

Rocky Bottom Lake

Dicrotendipes

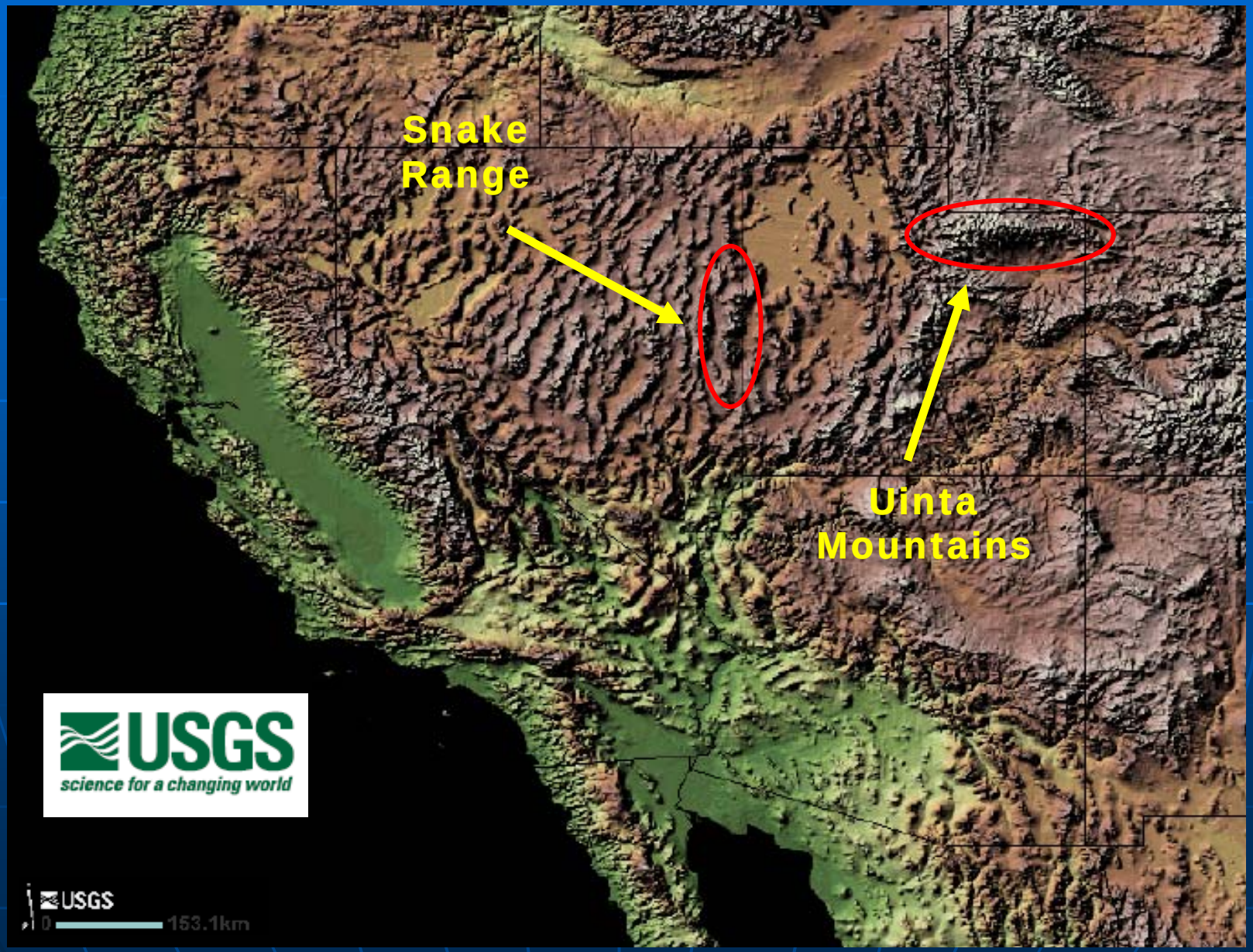
Moat Lake

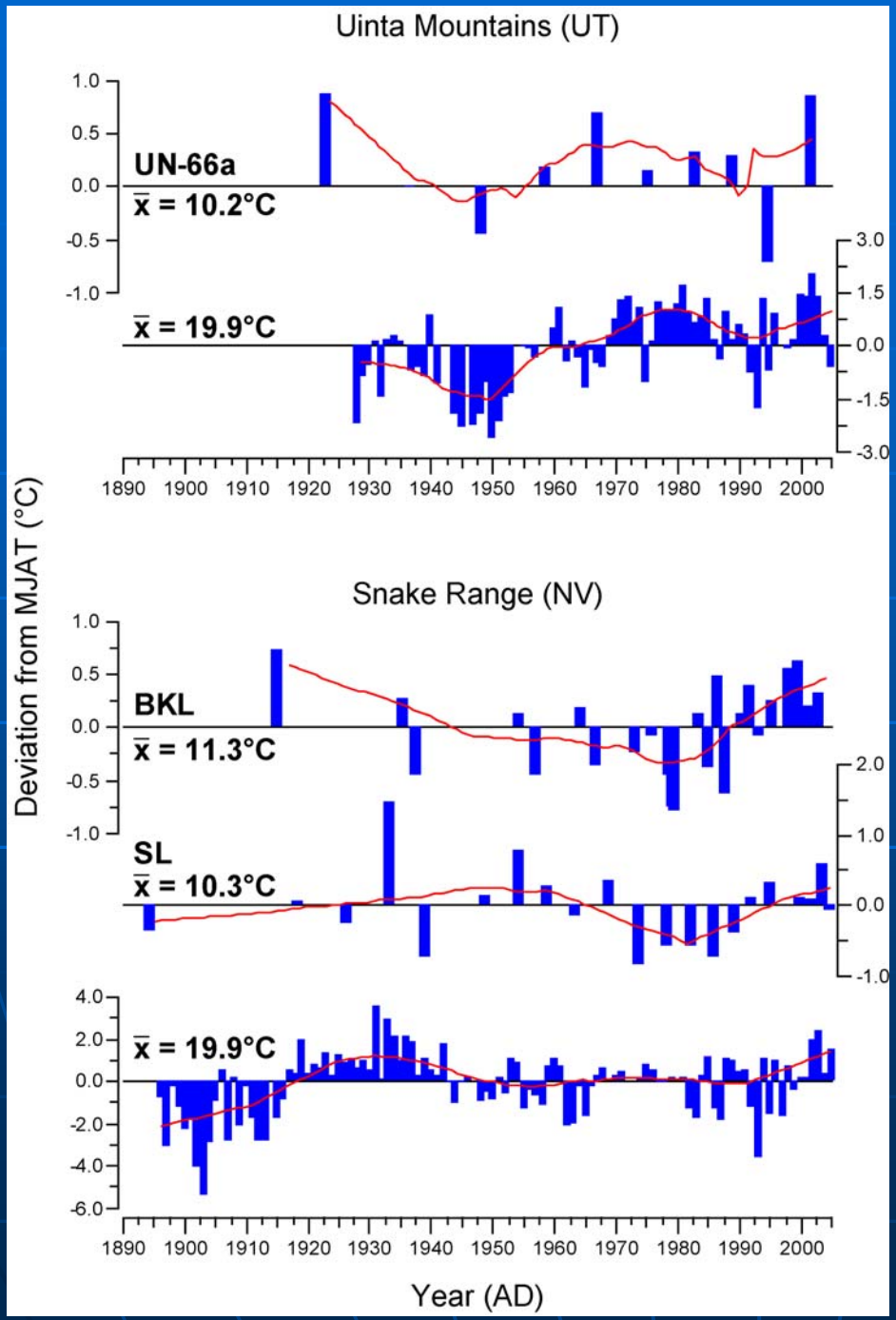




Porinchu et al., 2007a

Application of July Air Temperature Inference Model





Vernal, UT

NV, Climate Division 2

Summary

- Midge communities in the Sierra Nevada, Uinta Mountains and Snake Range are sensitive to fluctuations in summer surface water temperature and air temperature
- Significant changes in midge community composition during the late 20th century likely reflect the influence of increasing summer temperatures in the Great Basin
- Chironomid analysis may be able to provide high-resolution (sub-decadal to sub-centennial) paleoclimate reconstructions of regional climate change (LIA, MCO, Younger Dryas)