Remote Sensing data sets in conjunction with MODIS land team validation

Focus in 2005 was on ChEAS tower, but ASTER data acquisitions were coordinated over other sites

Acquired:

Quickbird (5 images throughout area)

Disaster Monitoring Constellation (DMC)

ASTER

AWiFS

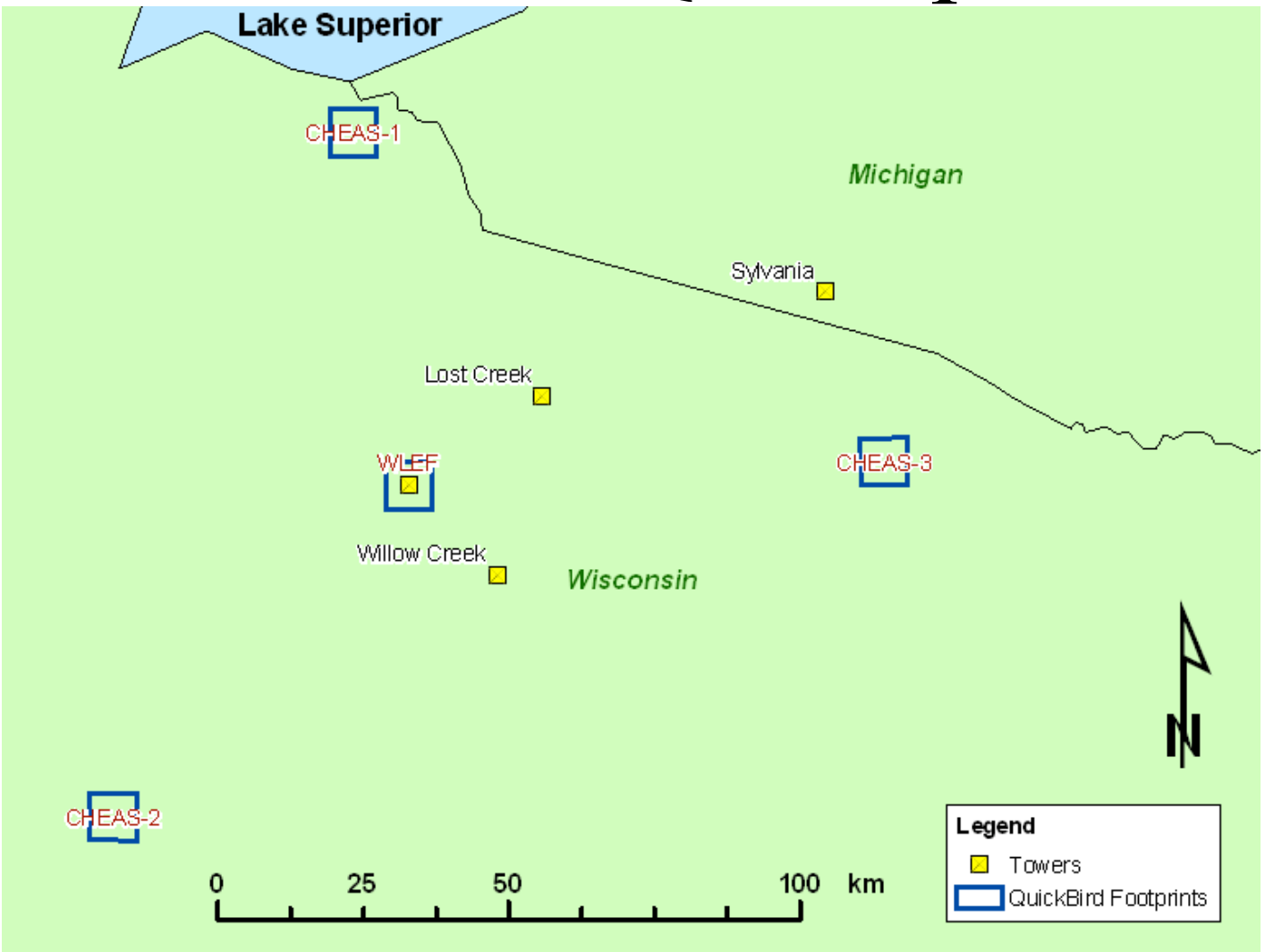
LIDAR (through Bolstad/Davis/Cook)

Available:

MODIS data “pre-processing” through the NASA Goddard ACCESS cooperative agreement

Atmospherically corrected Landsat from ~1990 and ~2000 through the LEDAPS project (PI: Jeff Masek)

Towers/QB Map



http://landval.gsfc.nasa.gov/nacp_fc.html

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MODIS land team

Field Campaigns related to NACP

This page is designed to provide links to data and information about mid-continent field activities that could be related to the North American Carbon Program. These activities also support validation.

Visit the North American Carbon Program home page for details about the initiative and related activities.

- **WLEF Tower (Park Falls)**

  This campaign took place near the Wisconsin Tall Tower in the Chequamegon-Nicolet National Forest of northern Wisconsin. The MODIS land discipline team collaborated with the NACP study of David Bolstad and Paul Davis in late July and early August of 2005. Participants included teams visiting from the University of Arizona, Boston University, South Dakota State University, and NASA's Goddard and Stennis Space Centers.

  Remote sensing (ASTER, Quickbird, AWiFS, DMC) data sets were acquired, and field data (aeronet, % cover, soil parameters, spectra, LAI estimations, standard and hemispherical photography) collected by various teams.

  Link to the EOS Validation site for Park Falls.

- **MCIC (Mid-Continent Intensive Campaign)**

  This initial intensive study will be used to develop and evaluate approaches to NACP. A multi-state region of the U.S. upper Midwest and extending into southern Canada is emphasized. The intensives were focused around flux towers to help reconcile estimate s of

Welcome to the EOS Land Validation Home Page

http://landval.gsfc.nasa.gov/

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GODDARD SPACE FLIGHT CENTER

+ NASA Homepage

MODIS land team

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Announcements:

- **MODIS Science Team Meeting**, Jan. 4-6, 2006, at the Radisson Plaza Lord Baltimore, Baltimore, MD.
- **Global Vegetation Continuous Fields (VCF) Validation Workshop**, October 27-28, 2005, Brookings, SD (SDSU).
- **LPV Workshop on Albedo Products**, April 27-28, 2005
- **Call for Papers** - TGARS Special Issue on Global Land Product Validation

MODIS News

- Terra
- Aqua

Landsat News

MODLAND Validation Strategy

MODLAND product quality is ensured by Calibration, Quality Assurance (QA) and Validation. The MODIS land validation effort will contribute to and leverage off of international validation standards and activities through close coordination with the Committee on Earth Observation Satellites (CEOS) Land Product Validation subgroup, under the Working Group on Calibration and Validation (WGCV).

MODLAND uses several validation techniques to develop uncertainty information on its products. These include comparisons with in situ data collected over a distributed set of validation test sites, comparisons with data and products from other airborne and spaceborne sensors (e.g., AVHRR, MISR, TM/ETM+, ASTER, SPOT), inter-comparison of trends derived from independently obtained reference data and MODLAND products, and analysis of process model results (including EOS Interdisciplinary Science models) which are driven or constrained by MODLAND products.

MODLAND's primary validation technique includes the collection of and

Questions

Where to focus in 2006?
What to acquire?

Data	**Cost**
LIDAR	$
AVIRIS	$/need to negotiate with NASA HQ/JPL
Quickbird	$/need to negotiate with Stennis (Pagnutti)
ASTER	time commitment, 20hour per scene (Nickeson)
A.C.TM	available through LEDAPS (Masek)
MODIS	available through ACCESS CAN (Morisette) with "value-added" phenology information

regional remote sensing land data

Suggestions (strawman)

Acquire Quickbird, LIDAR, AVIRIS and multi-date ASTER over flux towers in the MCI area (or aircraft sites?)

Consider

- "fine" (~1m spatial resolution)
- "high" (~30m spacial resolution)
- "moderate" (~250-1000m) imagery and
- a disturbance map (<30years and at a decadal temporal resolution)

With the ***objective of:***

Determining the best approach for using only the regional data (remote sensing and otherwise) to define "the bottom" and to quantify the accuracy of that approach

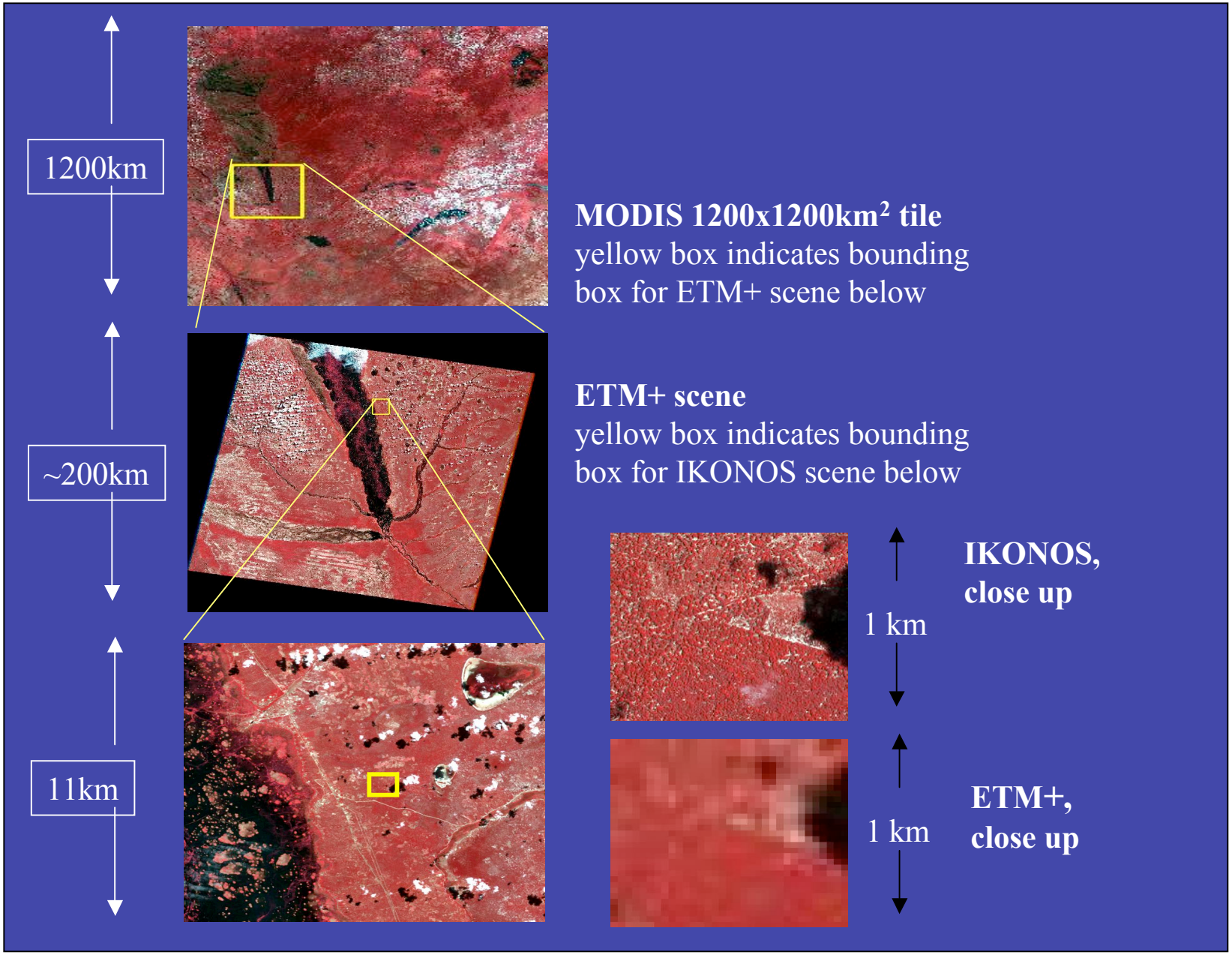
Applying that approach to the region.

Issues:

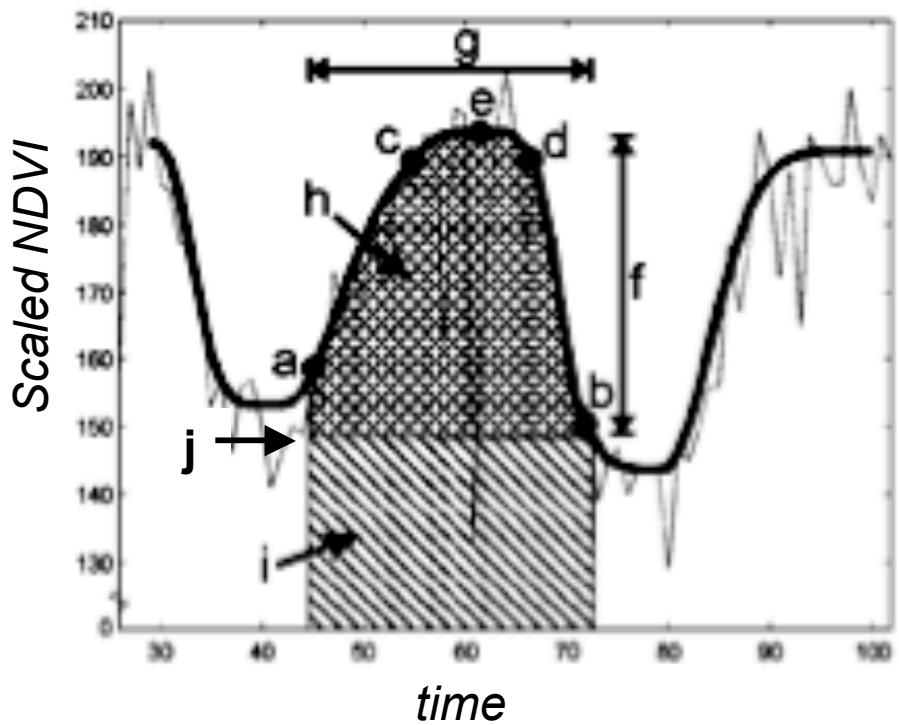
"Best approach" may be land-cover- (or even tower-) specific

MODIS land team can use fine and high resolution data to inform users of the accuracy of the given MODIS products but the carbon/bottom-up context needs to come from others (an NACP investigator commitment to this activity to select sites for LIDAR, AVIRIS and MODLAND field work)

Spatial resolution considerations



Phenology parameters “TIMESAT”



a) Beginning of season
b) End of season
c) Left derivative
d) Right derivative
e) Peak (time and value)
f) Amplitude
g) Length of season
h) Integral over season - scaled
i) Integral over season - absolute
j) Base value

TIMESAT - a program for analyzing time-series of satellite sensor data
Per Jonsson & Lars Eklund, Computers & Geosciences 30:833-845, 2004.