

SENSE, PREDICT, ACT

PLANETARY SKIN

**ALERTS: Detecting and responding to
land use change**

Planetary Skin Institute
6 December 2010

ALERTS: Global Land Use Change ObSErvatory



ALERTS^{BETA} is a Web-based platform for land use change, providing:

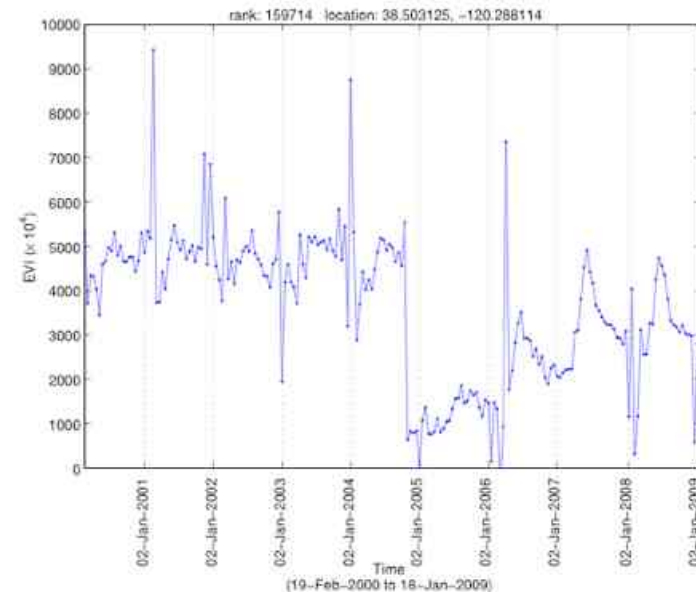
- Global coverage of change events
- 1km x 1km resolution (250m in some locations)
- Near-real time results (6-8 weeks) and reconstructed historical record
- Accuracy comparable to best available existing alternatives
- Automated, low-cost execution
- Customizable electronic alerts
- Basic online analysis tools

ALERTS^{BETA} is a path toward global coverage at minimal incremental cost

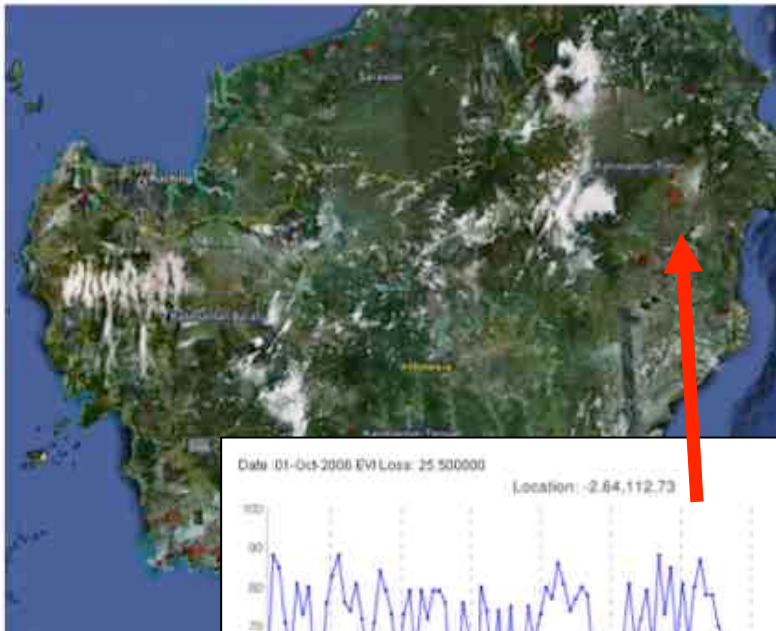
**PLANETARY SKIN
INSTITUTE**

How ALERTS algorithms work

- Current approaches to land use change detection are difficult to scale globally
- **ALERTS^{BETA}** uses automated algorithms to identify changes in vegetation signal from MODIS data products (EVI/FPAR)
- Algorithms exploit **historical variation** to support change detection, enabling global scalability



Example: History of forest fires in Indonesia



- Algorithm detects severe breaks in signal
- Pixel is identified as highly probable change
- Recovery 'signature' of rapid regrowth permits identification as fire

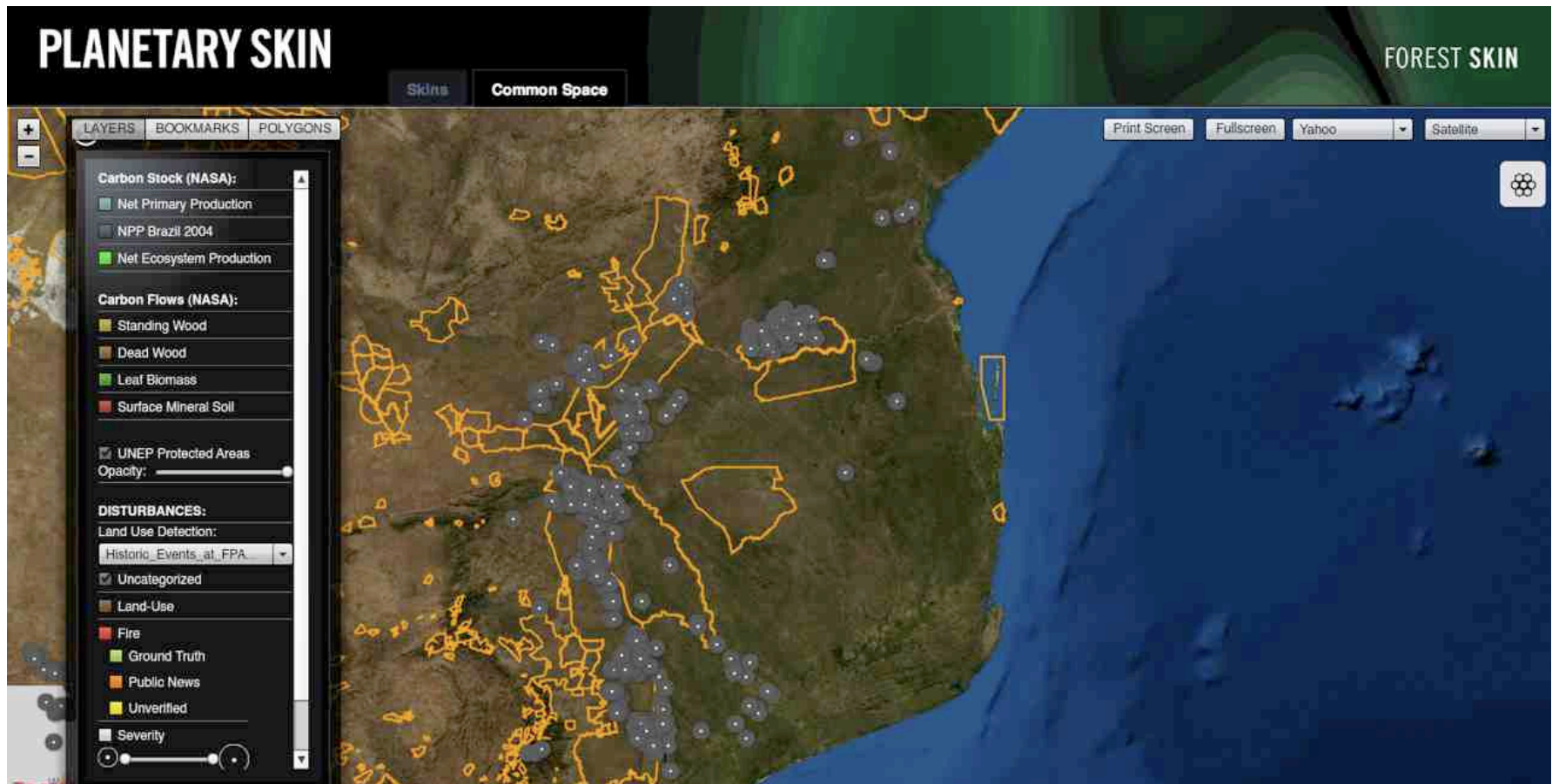
Approach can reconstruct historical record AND support near real-time detection

We have developed an information platform to serve as a global public good

- Objective: support end-users to respond to land use change by providing open and accessible collaboration platform – ‘www.ourplanetaryskin.org’
- Web 2.0 interface allows contextual layering, polygon creation and validation, comments and ratings
- Future development priorities include data upload and social networking tools



Change detection, coupled with contextual layering and other tools, enables managers to identify and respond to land change



PLANETARY SKIN
INSTITUTE

We are assessing the accuracy of ALERTS, and initial results are extremely positive



- We are currently completing a rigorous quantitative evaluation against available validation data sets
- Initial results suggest that GLUCOSE historical algorithm performance compares favorably with best available alternatives in both temperate and tropical forests
- Initial validation results will be reported in a white paper to be released at COP-16 in Cancun

Some key advantages of ALERTS include...



- Automated, rapid refresh providing near real-time situational awareness
- Ability to scale to nation-wide coverage almost immediately
- Innovative algorithms for managing data quality and cloud cover issue
- Open, accessible platform for accessing data and images
- Inexpensive, non-profit operation supported by network of world-class partners