

Land-Cover and Land-Use Change: Retrospective

Tony Janetos

World Resources Institute

Land-Cover and Land-Use Change: Program Vision

- Capability to perform repeated global inventories from space
- Evaluate consequences of observed change

Land-Cover and Land-Use Change: Program Goals

■ Land-cover conversion

- Identify current distribution of land-cover types
- Track conversion to other land-cover types
- Primary interest in conversion of forest ecosystems to other types

■ Land-use intensification

- Understand consequences of intensified management of agricultural and agroforestry systems in tropics and sub-tropics
- Measure the long-term *in situ* degradation of forest ecosystems

Land-Cover and Land-Use Change: Program Goals

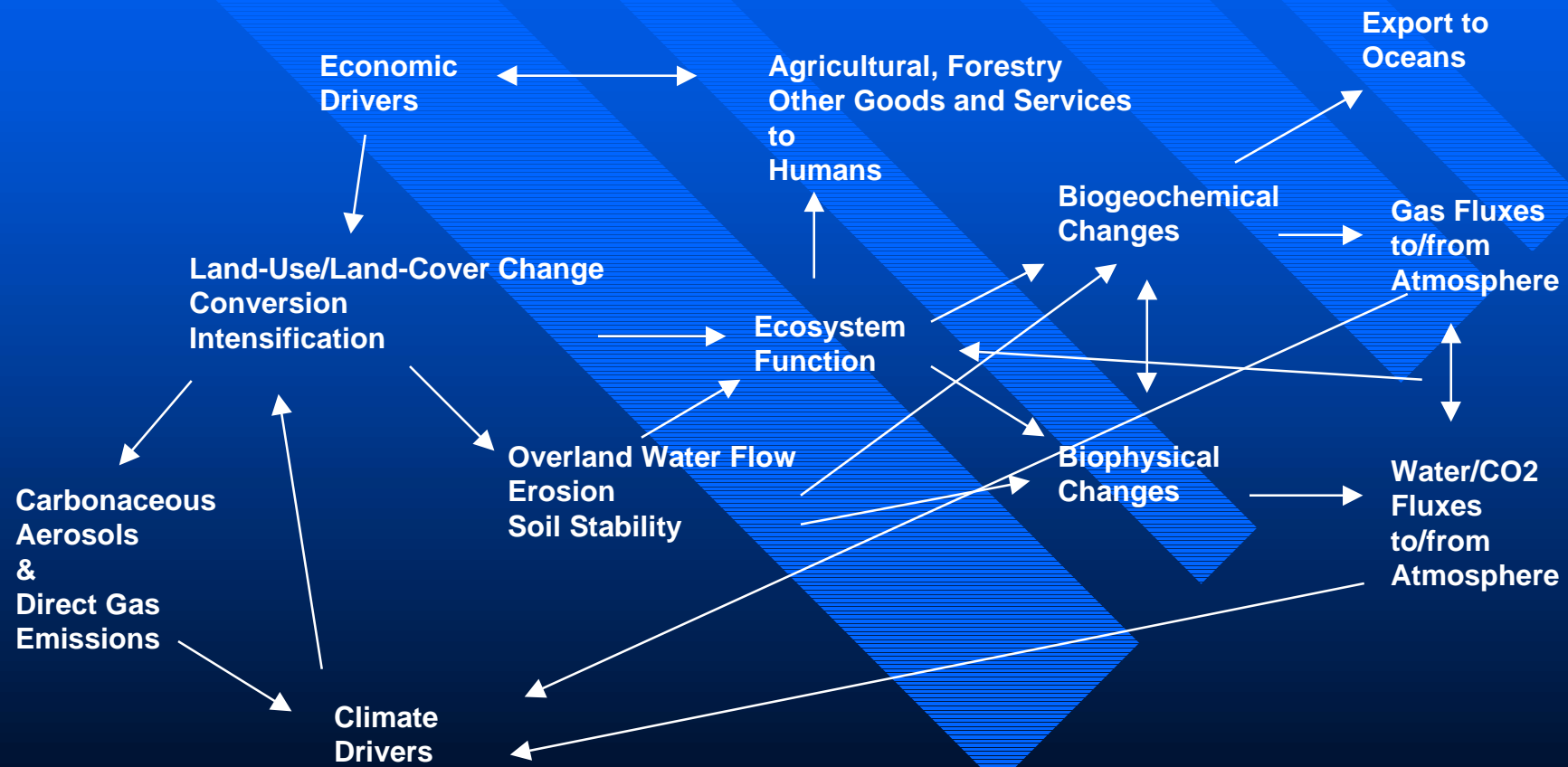
■ Verification

- Understand consequences of international agreements
- Investigate forestry and agriculture in temperate and boreal climates

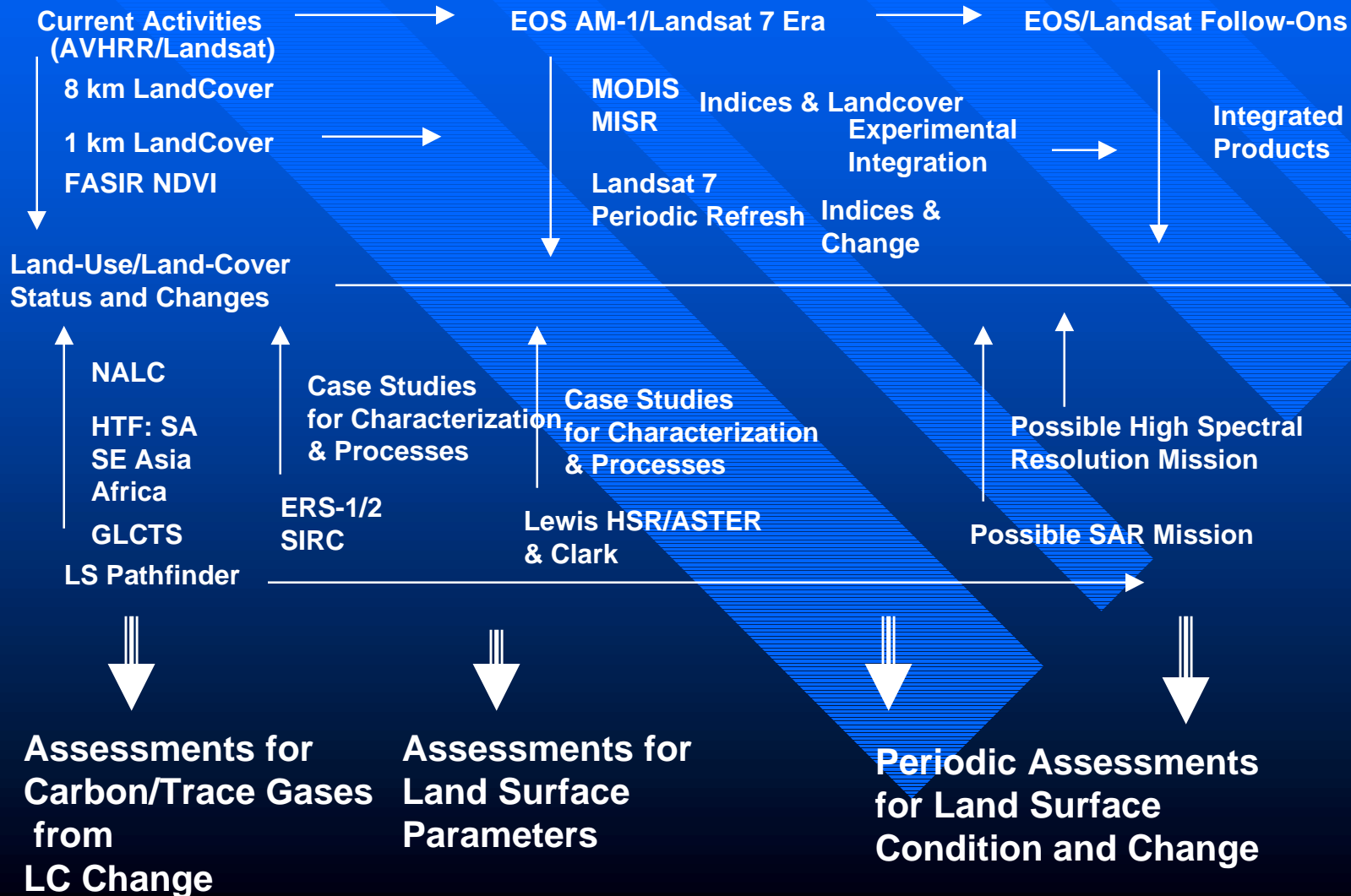
■ Modeling

- Develop techniques to incorporate actual land-cover

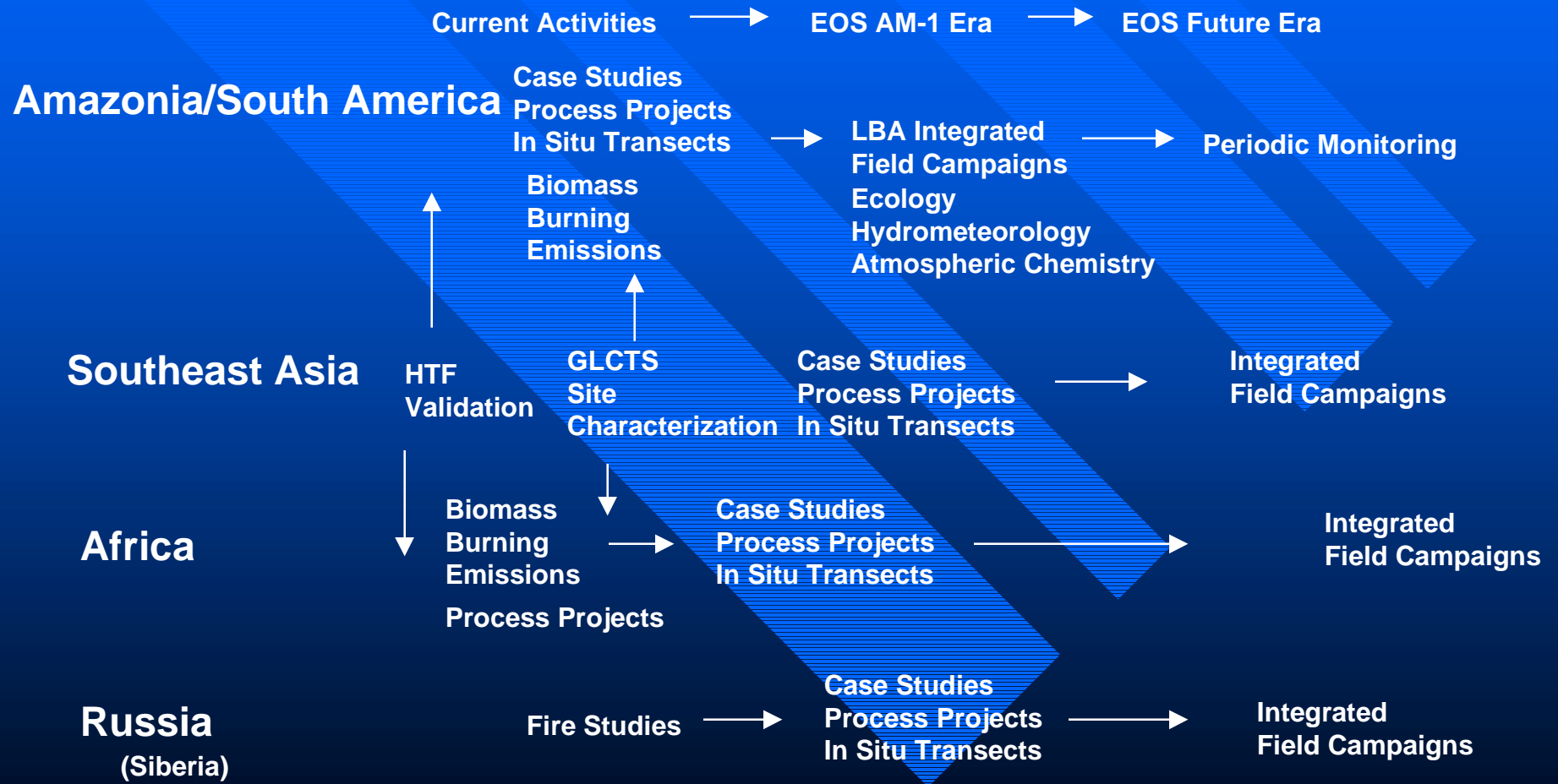
Interactions of Land-Cover/Land-Use Change



Satellite Studies & Assessments



Land-Cover/Land-Use Change: Field Studies & Campaigns



Land-Cover and Land-Use Change: Selected Accomplishments

- Deforestation rates for Brazilian Amazon quantified for late 1970's-1980's
- Estimates of regrowth in Amazon as high as 30% of the area
- Satellite observations of distribution and frequency of fires in southern African savannas
- Increases in boreal fire frequencies could potentially contribute another 0.3-0.8 GtC/yr to the atmosphere as a consequence of increased greenhouse warming

Land-Cover and Land-Use Change: A View Ahead

- Premier example of interdisciplinary study of land-use in the USGCRP
- Important contributor to US National Assessment of Potential Consequences of Climate Variability and Change
- Important contributor to international scientific assessments related to land-cover and land-use
- Must now incorporate new measurement and modeling capabilities
- Must now become major contributor to policy-relevant issues internationally and domestically