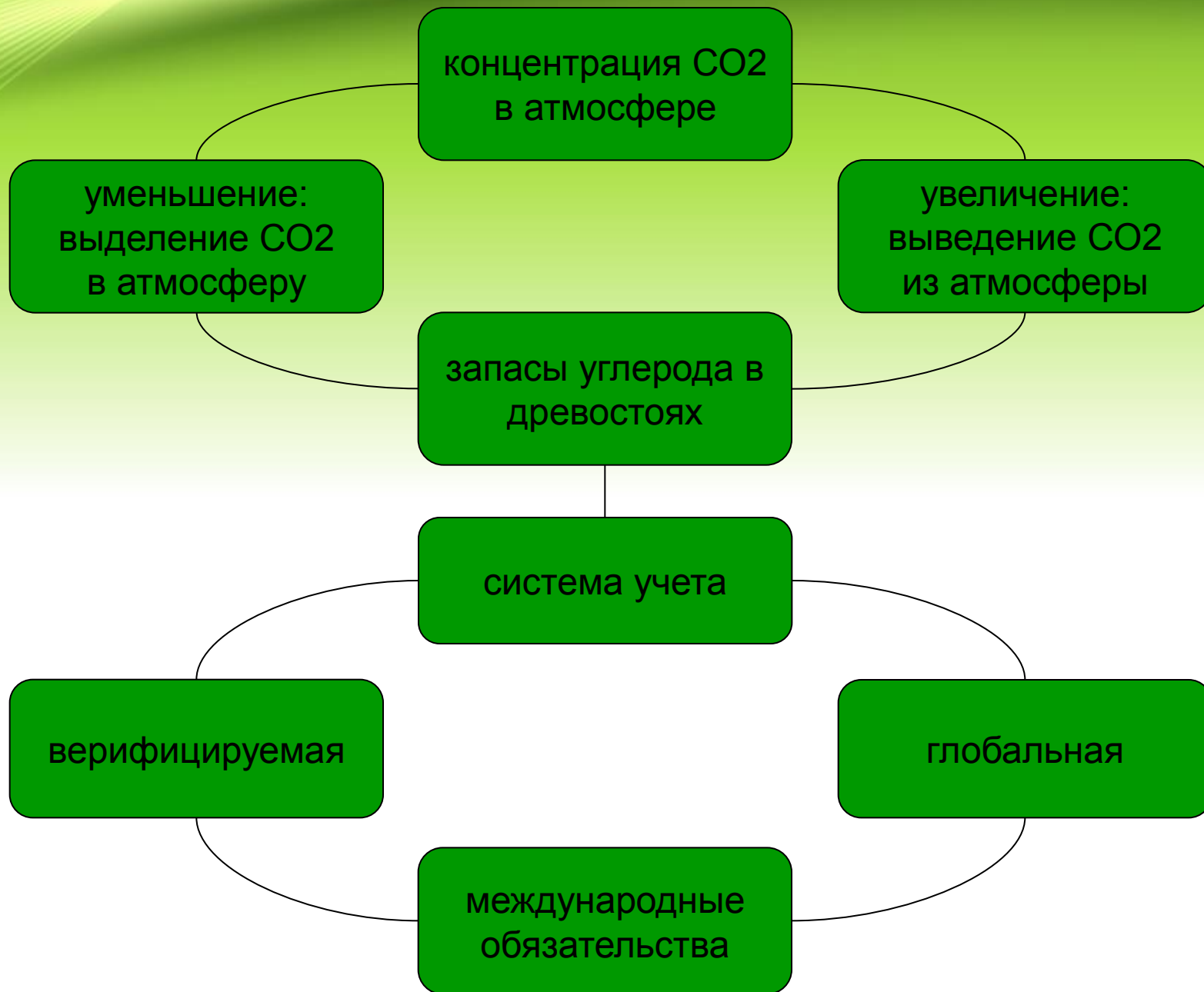


Глобальная верифицируемая система  
учета запасов углерода в древостоях

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**call for a global airborne LiDAR campaign that will measure the 3-D structure of each hectare of forested land between the Tropic of Capricorn and Tropic of Cancer.**

100 000 га в день, 10 самолетов, 4 года, 250 млн USD = 5% от финансирования, выделенного на программу сокращений выбросов CO<sub>2</sub>, связанных с сокращением площади лесов и их деградации

**These are the days of lasers in the jungle**

*Joseph Mascaro, Gregory P Asner, Stuart Davies, Alex Dehgan and Sassan Saatchi*

American Association for the Advancement of Science, 1300 New York Ave NW,  
Washington 20001, DC, USA

Department of Global Ecology, Carnegie Institution for Science, 260 Panama St.,  
Stanford 94305, CA, USA

Forest Global Earth Observatory, Center for Tropical Forest Science, Smithsonian  
Tropical Research Institute, Washington 20013, DC, USA

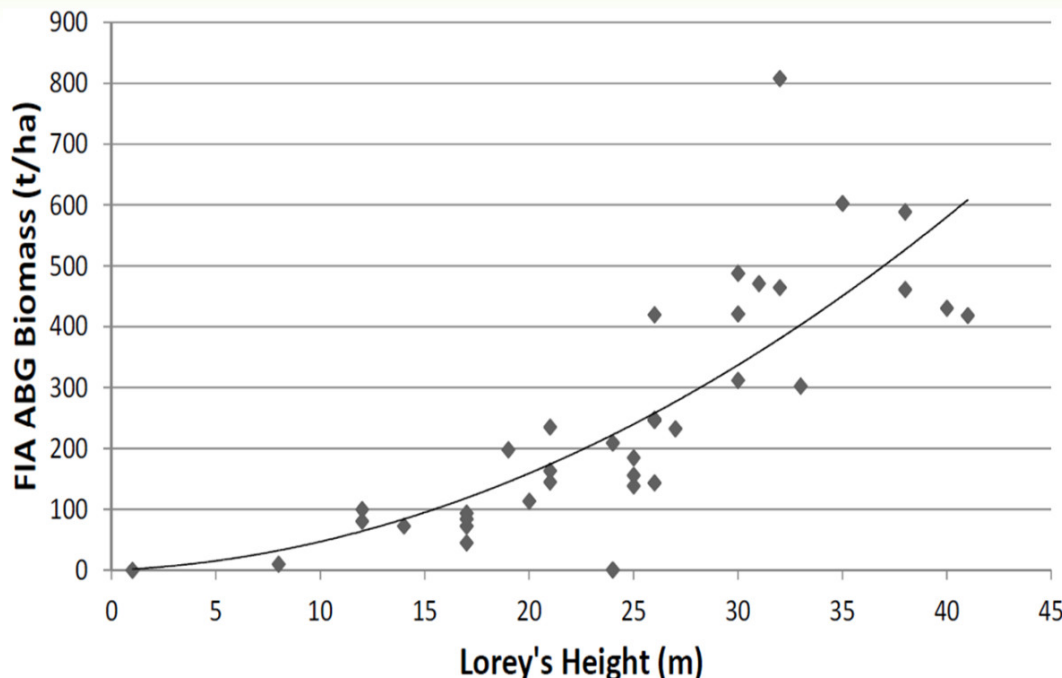
Conservation X Labs, 2380 Champlain St. NW #203, Washington 20009, DC, USA

Jet Propulsion Laboratory, California Institute of Technology, 4800 Oak Grove Drive,  
Pasadena 91109, CA, USA

# Первым делом самолеты? Ну, а спутники?

Lidar height data collected by the Geosciences Laser Altimeter System (GLAS) from 2002 to 2008 has the potential to form the basis of a globally consistent sample-based inventory of forest biomass.

Оценка средних запасов биомассы на гектар в лесах Калифорнии, полученная по данным лазерной альтиметрической системы GLAS, практически не отличается от оценки, полученной по данным лесного учета.



The relationship FIA-measured aboveground tree biomass and GLAS Lorey's height in California.

Healey et al. Carbon Balance and Management 2012 7:10

<http://www.cbmjournal.com/content/7/1/10>

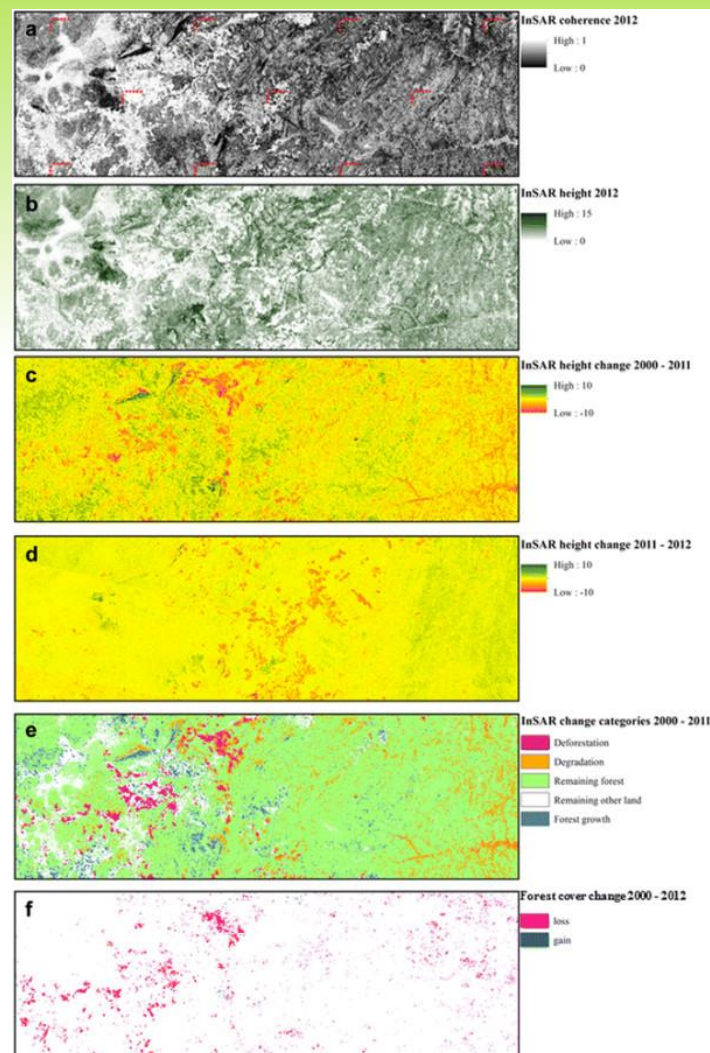
**TanDEM-X has the capacity to cover the entire forest area in the world wall-to-wall once a year with 5 m x 5 m spatial resolution.**

Изменение высоты древостоев может быть оценено с помощью интерферометрической радарной съемки.

Results for the 356 km<sup>2</sup> study area, which were oriented East–west (32.5 km) and North–south (11.3 km). a. InSAR coherence 2012 and the field plots shown as red dots. b. InSAR height 2012 (m). c. InSAR height change from SRTM 2000 to TanDEM-X 2011 (m). d. InSAR height change 2011 – 2012 (m). e. InSAR change categories. f. Forest cover gain and loss.

Solberg et al. Carbon Balance and Management 2015 10:14

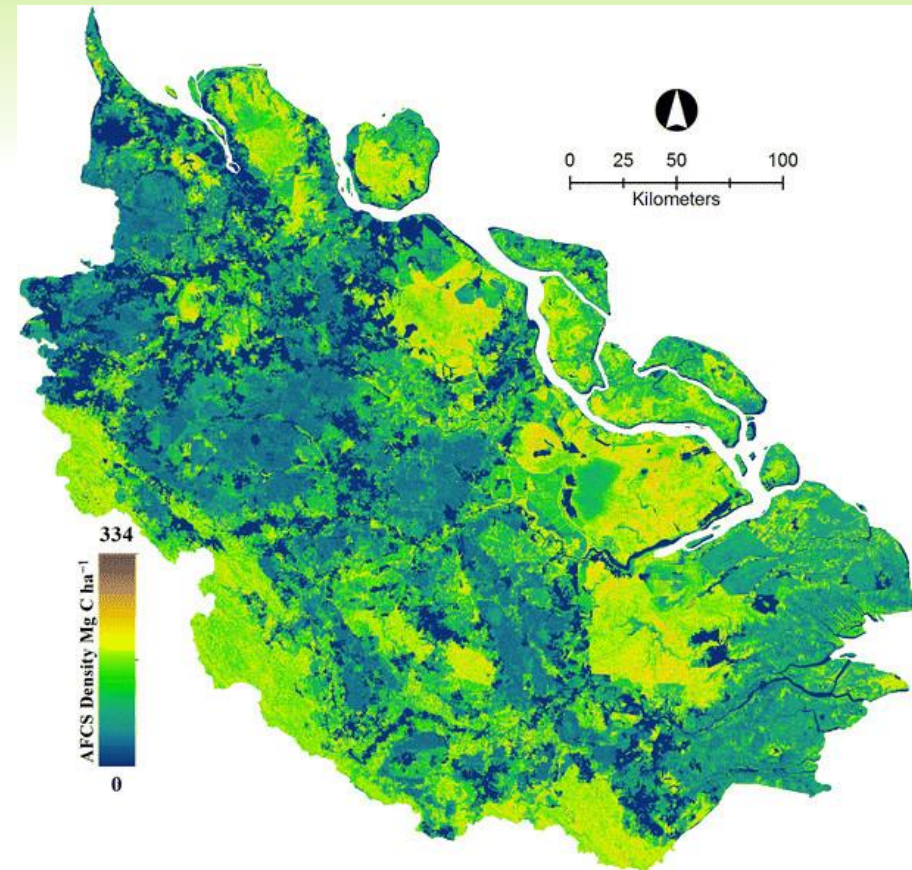
<http://www.cbmjournal.com/content/10/1/14>





The integration of both airborne and spaceborne remote sensing techniques has offered the opportunity to more precisely map forest cover and related carbon stocks over wider areas at suitable spatiotemporal scales

Радарная съёмка может существенно повысить эффективность учета запасов углерода в древостоях, проводимого с помощью воздушного лазерного сканирования



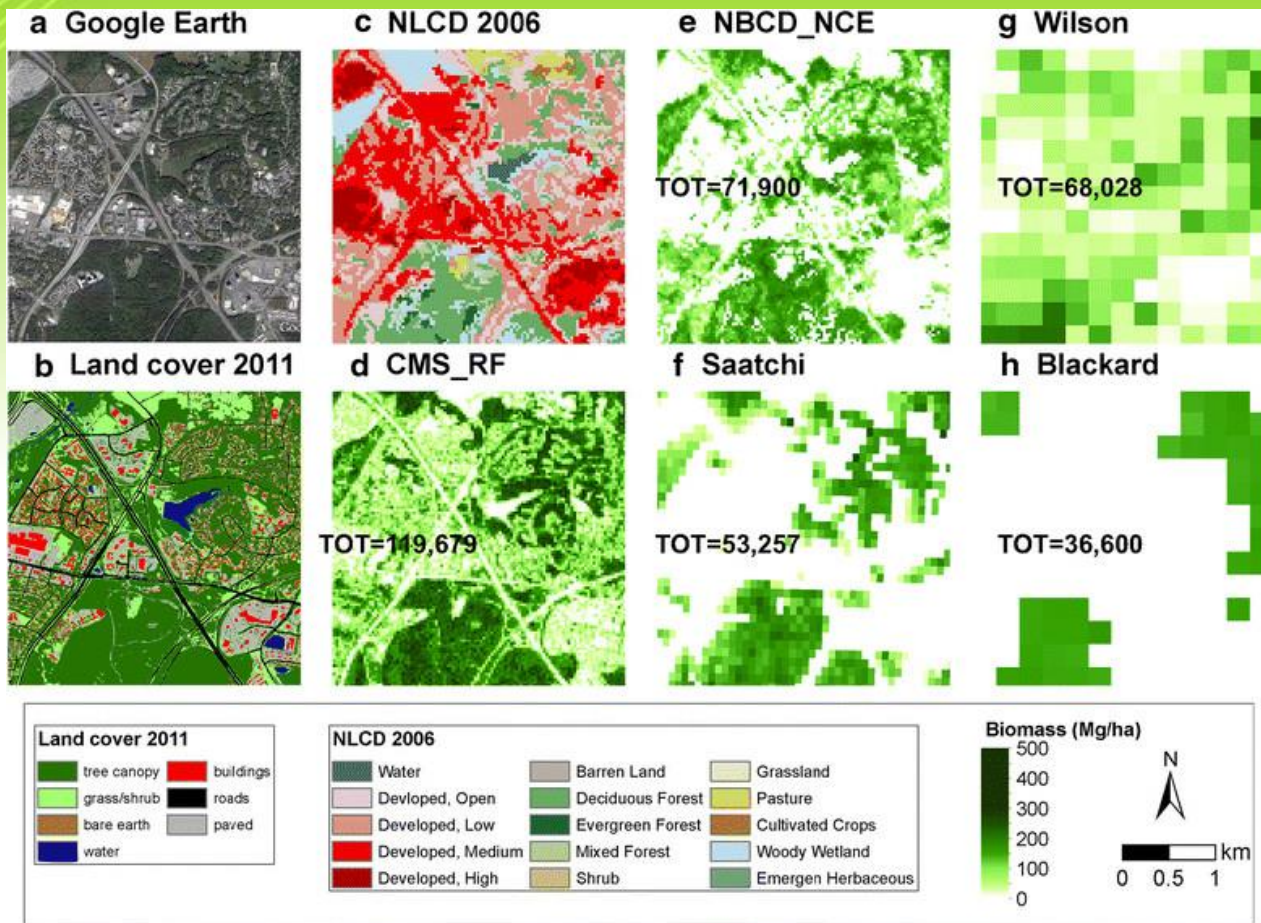
AFCS map, calculated using PALSAR mosaic data

PALSAR -- Advanced Land Observation Satellite (ALOS) Phase Arrayed L-band SAR operating at a wavelength of 23.6 cm

Thapa et al. Carbon Balance and Management 2015 10:23

<http://www.cbmjournal.com/content/10/1/23/>

Локальные расхождения между картами разного масштаба, неполностью устраняются при агрегировании до континентального уровня



Discrepancies in spatial distribution of biomass density at fine-scale. a Google Earth image in 2012; b high resolution [1 m] land cover map; c NLCD2006; d CMS\_RF biomass product at 30 m spatial resolution; e NBCD\_NCE biomass product at 30 m spatial resolution; f Saatchi biomass product at 100 m spatial resolution; g Wilson biomass product at 250 m spatial resolution; and h Blackard biomass product at 250 m spatial resolution.

Huang et al. Carbon Balance and Management 2015  
10:19; <http://www.cbmjournal.com/content/10/1/19>