GlobeLand30: A Milestone in Earth Observations and Open Access Geo-spatial Information

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The world's first 30-meter resolution global land cover (GLC) dataset, GlobeLand30, has been donated by China to the United Nations (Fig. 1). UN Secretary-General, Mr. Ban Ki-moon praised this timely donation during the donation Ceremony on the 22nd September 2014. He said "The World needs solid, science-based information for making wise decisions for sustainable development. This donation is very timely and precious. Tomorrow, global leaders will gather at the United Nations to participate in the Climate Change Summit and to confirm their commitments to action. These detailed data sets will help us to better understand, monitor and manage changes in land cover and land use all over our planet. I commend you for this laudable example of information sharing". This global dataset will be freely available to Member States and the international community to assist in their scientific decision-making, and to measure and monitor critical environmental components of the SDGs and post-2015 development agenda, as reported by UN Statistics Division (http://unstats.un.org/unsd/GlobeLand30.htm)

Figure 1 UN Secretary-General, Mr. Ban Ki-moon received the GlobeLand30 from Mr. Zhang Gaoli, Vice Premier of China at the Donation Ceremony

In the past four years, Professor Chen Jun, ISPRS President and Chief Scientist at the National Geomatics Center of China, and his team have processed over 20,000 Landsat and Chinese HJ-1 (also at 30m resolution) imagery to cover the entire earth land surface and to derive ten land cover classes at global scale for two years, 2000 and 2010. 30-m resolution GLC mapping is much more complex than national or regional scale due to a number of factors, including the availability of good-quality imagery covering the land surface of the entire earth (about 150 million km^2) and the complex spectral and textual characterization of global landscapes. It requires a substantive level of technical innovation, as well as human and financial resources. This makes the development of reliable 30m GLC data sets one of the most challenging tasks. This could be the reason why so far only global datasets with limited classes at 30 resolution have been reported. Professor Chen Jun and his team have developed a set of new models and novel approaches making it possible to

produce GlobeLand30 2000 and 2010 within a four-year period. This is a milestone achievement in the history of obtaining global geo-spatial information from satellite imagery, and can also serve as a successful example of big data mining.

In comparison with the existing GLC datasets ranging from 300 to 1,000m resolution, GlobeLand30 provides more detailed land cover patterns and their changes induced by human activities during 2000 and 2010. KTH and IIASA conducted an initial validation of the global water layer of the GlobeLand30 in Northern Europe. The preliminary results show that accuracy of Globeland 30 (total disagreement less than 5%) was much higher than other existing GLC products. Now the full data sets of GlobeLand30 (Fig. 2) are freely available on the website (http://www.globallandcover.com/GLC30Download/index.aspx). The open access of this important scientific data set will largely promote the scientific data sharing in the field of Earth observations and geo-spatial information sciences.
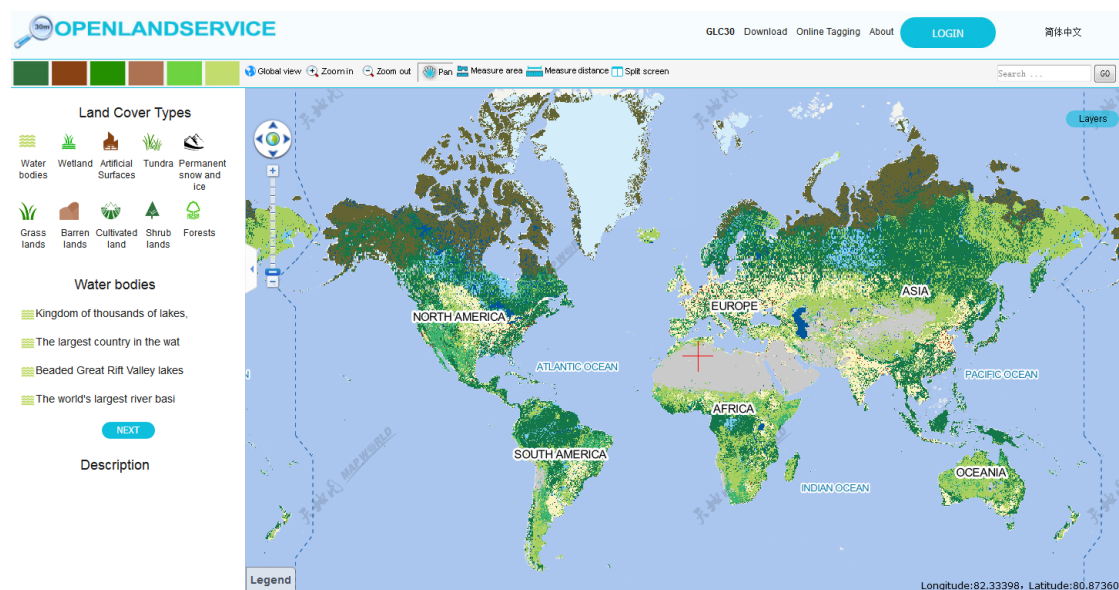

Fig. 2 OpenLandService- the web platform for GlobeLand30

Recognizing the importance of GLC information, ISPRS decided in its 2012 Congress in Melbourne to establish an inter-commission working group on Global Land Cover Mapping and Services involving three of its eight technical commissions (TC II, IV and VIII). One of the main objectives of this working group is to coordinate international efforts on identifying scientific, technological and application challenges related to GLC mapping, validation and web services of GLC data. As the chair of this working group, I would like to take this opportunity to call for your participation in the continued validation and refinement of GlobeLand30 and other GLC products, as well as in the collaborative GLC information services. I would also like to take this opportunity to congratulate Professor Chen Jun and his team for this remarkable achievement.