A new forest map of South America using MODIS data 2013

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Forests cover approximately 4 billion hectare (ha) of the earth, not only to provide a place and resource of habitat to life on Earth, but also play a major role in global environmental conservation through such as CO2 absorption and evapotranspiration action. In recent years, anthropogenic CO2 emissions, the reduction and deterioration of forests due to deforestation is happening. This loss of biodiversity is serious environmental problem. In order to solve these problems, it is necessary to capture the forest change on a global scale and to create a forest maps using remote sensing as one of the means. The study area is South America (63 °S, 60 °W from longitude 90 °W from latitude 14 °S). The land surface area is about 1.7 billion ha in 2008 and the population are about 385 million people. Amazon is the largest tropical rainforest at continental scale, and has about 21 percent of the world's forests. The proportion of forest in the continent at the time in 2005 is reported about 50% -47%. The objective of the study is forest mapping of S.A. with six forest types; evergreen needleleaved forest, evergreen broadleaved forest, deciduous needleleaved forest, deciduous broadleaved forest, mixed forest and open forest. MODIS 500m (2013) data and PALSAR global mosaic data were used for the classification. Original MODIS data were converted into indexes like NDVI, GRVI and LSWI, and predictor variables were produced. To create training data, high resolution images in Google Earth and the data that was used for the global mapping of 2008 year were used as reference. Mapping was done by the supervised classification method using decision trees. After creating a forest map, validation was done by random sampling method for each class.

Keywords: MODIS, South America , forest map

