

ABSTRACT

Annual mapping of deforestation in major tropical forests using the multi-satellite DMC constellation – providing an objective operational baseline for REDD.

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Tropical forests are acknowledged as significant carbon sinks, which are increasingly degraded through the impact of agriculture and logging, leading to significant carbon emissions which have the potential to adversely affect the global climate. The Intergovernmental Panel on Climate Change (IPCC) estimates that 20-25% of current annual carbon emissions result from loss of tropical forest

The REDD initiative (Reducing Emissions from Degradation and Deforestation) seeks to alter the economic balance in favour of reduced deforestation by providing financial incentives to Governments to implement sustainable management of these important resources.

Effective management and monitoring requires regular, reliable, objective information about the state of these large inaccessible areas of forest to provide information for decision making and for evaluation of REDD payments. Hitherto single satellites have been used to provide decadal mapping of forests, but for the REDD programme it becomes vital to have annual operational mapping, and this is now being available from the DMC constellation of satellites. Since 2005 DMC International Imaging Ltd. (DMCii) has coordinated the multiple satellites of the DMC to deliver annual or multi-season mapping of the Amazon Basin forests to INPE to support the Brazilian PRODES system. International effort is now focussed on the world's second largest area of tropical forest - the Congo Basin. The DMC satellites can provide daily wide area imaging, enabling cloud free mosaics to be generated in a reasonably short period. Two new satellites, UK-DMC2 and Deimos-1, which launch into the DMC constellation in Spring 2009 will greatly enhance the constellation's total imaging capacity and also improve the ground sample distance from 32-metres to 22-metres, giving double the number of pixels per hectare.

This paper reviews DMCii's work since 2005 monitoring tropical rain forests and presents the data from the new DMC satellites and its application to mapping deforestation in current programmes.