

The Global Mangrove Watch and Mangrove Watch Africa  
P. Bunting, R.M. Lucas, A. Rosenqvist, P. van Eijk, L. Hillarides, P.M. Wade & J.  
Mulonga  
Aberystwyth University, United Kingdom  
University of South Wales, Australia  
SoloEo, Japan  
Wetlands International, Netherlands  
Wetlands International, Netherlands  
Wetlands International, Senegal  
Wetlands International, Kenya  
[pfb@aber.ac.uk](mailto:pfb@aber.ac.uk)

Globally mangrove forests have witnessed a considerable amount of change over past few decades, with clearing (e.g., for aquaculture), erosion, sedimentation events and dieback making this ecosystem one of the most dynamic. Mangroves are also vulnerably to climate change with changing sea levels, precipitation and temperatures providing new opportunities for mangroves but also making some areas uninhabitable. The time lag between these events and the mangrove response is also short; it can be only a few months. Little information is known on the overall extent of mangroves and how this extent and condition has been changing at a global scale. This study has therefore created the first global monitoring system for mangrove forests. The system has its origins in the JAXA Kyoto & Carbon (K&C) initiative and has therefore focused on the application of JAXA ALOS PALSAR, ALOS-2 PALSAR-2 and JERS-1 data with the augmentation of Landsat to aid the definition of the 2010 mangrove global baseline. Change products (from the 2010 baseline) were produced for 2007, 2008 and 2009 using ALOS PALSAR, 1996 using JERS-1 and 2015 and 2016 using ALOS-2 PALSAR-2. The baseline classification was created using an automated machine learning approach based on random forests algorithm while the change products were produced using a new innovative map-to-image change detection approach. The maps generated are to be provided through the World Resources Institute (WRI) Global Forest Watch (GFW) site and are being made available to support the long-term conservation of mangroves, the enhancement of mangrove-related natural resources and their sustainable and wise use.