Blue carbon inventories in mangroves areas from the Mexican Pacific

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**Scientific context and objectives**
Recent attention has focused on potential carbon sequestration from vegetated coastal ecosystems, such as marshes, mangroves, and seagrasses. This “blue Carbon”, as carbon sequestered in coastal wetlands (Nellemann et al., 2009; Gordon et al., 2011), may be released to the atmosphere in the case of destruction or degradation of these environments. It seems thus important to evaluate blue carbon stocks in order to understand the role wetlands could play in the carbon cycle.

As wetlands, mangrove forests are valuable environments for both biodiversity and human activity. They occur throughout the world on tropical and sub-tropical coastlines and are shrub- and tree-dominated, intertidal, saltwater communities (Lincoln et al., 1998). They contribute to the structuring and the stability of the habitat, serve as nurseries and fishery but also play a major role in the carbon cycle in the tropics (Donato et al., 2011) and as protection against coastal erosion and natural catastrophes (like tsunami or storm; Dahdouh-Guebas et al., 2005; Blankespoor et al., 2017). Unfortunately, they are disappearing with a global loss exceeding 35% of the original cover (Valiela et al., 2001) and estimated at between 2 and 8% per year (Miththapala, 2008). Many causes can be formulated such as deforestation, urbanization or climate changes (IPCC, 2014). The attention to the conservation and restoration of mangrove forest has recently increased due to the decline of species richness (Polidoro et al., 2010) or the recent December 26th 2004
Indian Ocean tsunami (Dahdouh-Guebas et al., 2005) that highlighted the human services of this environment.

The goal of this internship is to do a retrospective evaluation of Blue Carbon inventories in a mangrove area situated in the south of Sinaloa, Mexico. Sediment cores will be collected and analyzed by Lead-210 method to establish modern sediment chronology and to estimate sediment accumulation rates (over last 100 years). Geochemistry data will be used to attempt elucidating environmental changes affecting the Blue Carbon inventories.

**Bibliography**


Valiela, I., Bowen, J.L. and York, J.K., 2001. Mangrove Forests: One of the World's Threatened Major Tropical Environments: At least 35% of the area of mangrove forests has been lost in the past two decades, losses that exceed those for tropical rain forests and coral reefs, two other well-known threatened environments. Bioscience, 51(10), pp.807-815.