

Monitoring mangrove change in the Colombian Pacific: Mangrove gain in the Sanquianga National Park



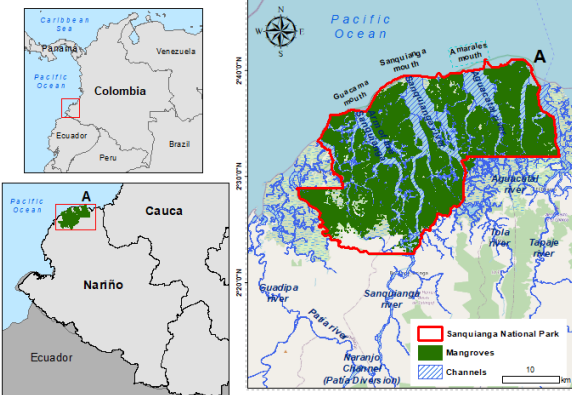
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Abstract

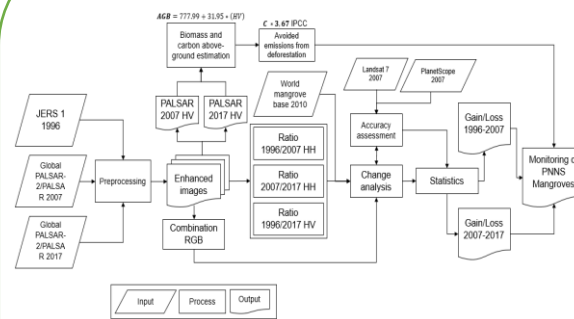
Sanquianga National Natural Park (PNNS) is the largest mangrove area in the Colombian Pacific and South America. Estimation of biomass and sequestered Carbon (C) are unknown. Using JERS 1 and ALOS-PALSAR in two time periods 1996-2007 and 2007-2017 we calculate above-ground biomass (AGB) and Carbon (C) contents and calculate avoided emissions from deforestation.



Research questions

- 1) What have been the gains and losses of mangroves in the periods 1996-2007 and 2007-2017 in PNNS?
- 2) What are the estimates AGB and C for 2007 and 2017 for PNNS?
- 3) What is the range of avoided emissions from deforestation for PNNS?

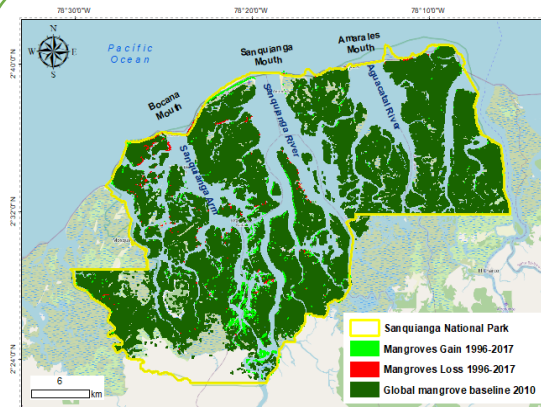
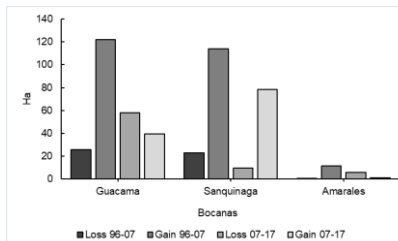
Methodology



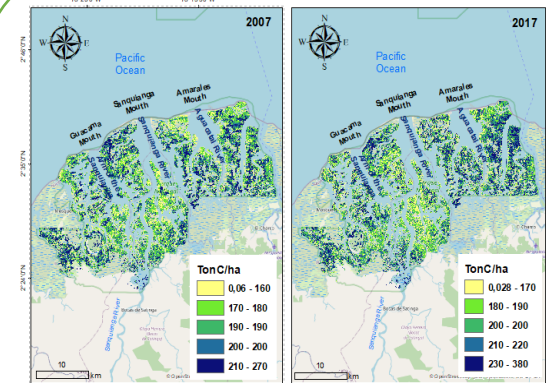
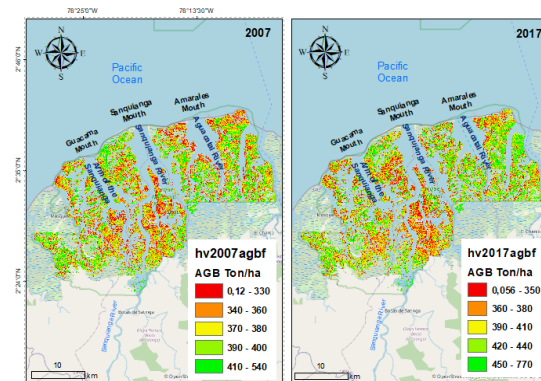
Optical images from Landsat 7 and PlanetScope sensor were used for quality control and accuracy. Likewise, the AGB and C were estimated by means of SAR backscattering (HV) through an allometric equation.

Results

Net increase from 1996 to 2017 was 243.97 ha of mangroves and estimated losses of 122.30 ha. Most changes (68.48%) were located in the Guacama mouth.



PNNS recorded an average AGB of 393.15 Ton/ha and an average C of 196.58 TonC/ha for 2017.



Total avoided potential emissions from deforestation were estimated at 28'277.944 GgCO₂eq.

Conclusions

Sanquianga is a region suitable for the development of Blue Carbon projects. Strategies involving monitoring tools and the local communities are necessary to preserve Sanquianga mangrove cover and the ecosystem services in the present and future.

Acknowledgements

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