Climate change increases coastal blue carbon sequestration

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Coastal Blue Carbon (BC), which includes mangrove and saltmarsh tidal wetlands, of which was first coined a decade ago to describe the disproportionately large contribution of coastal vegetated ecosystems to global carbon sequestration. The role of BC in climate change mitigation and adaptation has now reached international prominence. Recent studies have reported BC's unique role in mitigating climate change, projected coastal wetlands area change, carbon stocks in response to historical sea level rise fluctuations, and the future roadmap relative to carbon sequestration studies. However, several questions remain unanswered:

1. What is the global extent and spatial distribution of BC systems? 2. What factors influence BC burial rates? 3. How does climate change impact carbon accumulation in mature BC ecosystems?

In a recent publication in *National Science Review*, Prof. Wang and Prof. Sanders lead an international group to go beyond recent soil C stock estimates, to reveal global tidal wetland C accumulation and predict changes under relative sea level rise, temperature and precipitation. They use data from literature study sites (n=563) and new observations (n=49) spanning wide latitudinal gradients and 20 countries (Figure 1). They found that global tidal wetlands accumulate ~54 Tg C yr^{-1}, which is ~30% of the organic C buried on the ocean floor (Figure 1). Modeling based on current climatic drivers and under projected emissions scenarios revealed an increase of up to ~300 g C m-2 yr^{-1} by 2100 as an average global C accumulation rate (Figure 2). This rapid increase was found here to be driven by sea-level rise in tidal marshes, and higher temperature and precipitation in mangroves. Their results highlight the feedbacks between climate change and C sequestration in tidal wetlands (Figure 2). The findings in this research show that even though these global tidal wetlands only occupy