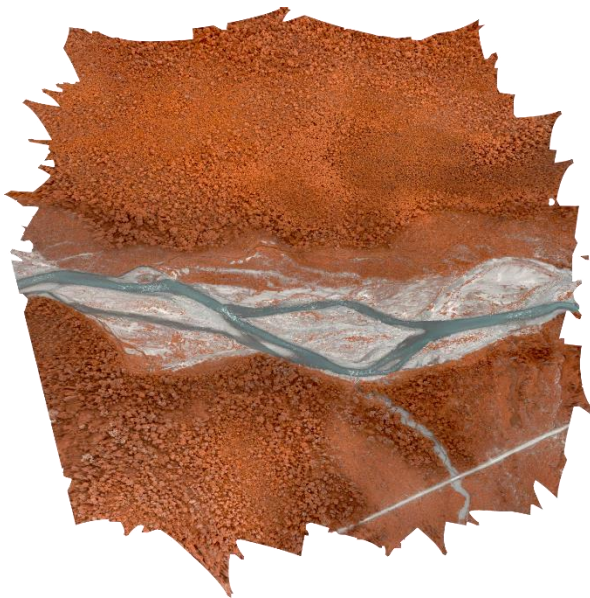


## Interested in how much and how fast temperate rainforests can store carbon? How much and how fast is such sequestered carbon released during disturbances?

Temperate rainforests are Earth's carbon storehouse #1 and play a key role in the regional and global organic carbon cycles. The organic carbon rich soils together with their above ground biomass sequester unparalleled quantities of carbon. At the same time, recent work suggests that single disturbance events, such as explosive volcanic eruptions or earthquakes, may episodically switch these forests from net sinks to net sources functioning. The fundamental question that arises from such paradox is, whether these forests are more



*Figure 1. Red edge snapshot of a floodplain forest in Northern Patagonia. Own data obtained by UAV survey.*

efficient sequesters or emitters of organic carbon on the long run, i.e. when averaged over multiple disturbance cycles. To tackle this question, one may (1) need to quantify biomass, (2) estimate their biomass accumulation rates, (3) finally simulate the forest dynamics over multiple disturbance cycles.

This Master theses will take use of several snapshots of aerial photography and red edge imagery to estimate forest cover, tree canopy, and vegetation activity in North

Patagonian rainforests. Next, such obtained quantities will be used to estimate forest productivity, i.e. the accumulation of biomass over time. Finally, these quantities will feed into a forest simulation model (preferentially the Physiological Processes Predicting Growth ([3-PG](#)) model, Landsberg & Waring, 1997) that allows us to assess (at first order!) whether single disturbance events release more organic carbon compared to the biomass accumulated in these forests during the inter-disturbance periods. This master project will be supervised by Christian Mohr and Bertrand Fournier, thus offering an interdisciplinary opportunity to be actively involved in exciting ongoing research.

Interested? Contact [cmohr@uni-potsdam](mailto:cmohr@uni-potsdam).