# Interested in how high, strong and severe floods can occur in the Patagonian Andes?

Interested in estimating flood waves in one of the most spectacular spots on Earth? Interested in working with drone-based geodetic data? Interested in hydrodynamic flood wave modeling? Then, this offered thesis might be the right for you! This thesis explores flood wave heights and related peak discharge in steep headwater catchments draining disturbance-rich temperate rainforests of the Southern Andes. Assuming that all boulders were transported by floods rather than by debris flows, we will (1) quantify boulder geometries (Figure 1) such as principal axes, (2) estimate floodplain geometries, e.g., cross sectional areas, which in turn (3) may feed simple hydrodynamic models, such as the Manning's equation. Ultimately, such models allow for quantifying flood magnitudes. These numbers are needed as a scientifically-sound base for planning critical infrastructure within the Douglas Tompkins National Park boundaries (Figure 2).

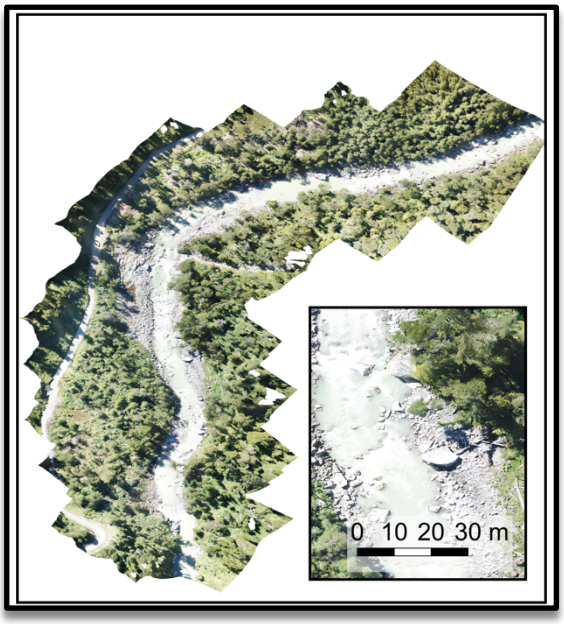


*Figure 1. Aerial photograph of a Patagonian mountain riverbed containing large boulders (inset).*

*Figure 2. Patagonian floodplain forest, river bed and the highway Ruta 5, Chile's only terrestrial connection in Patagonia.*

This Master theses will take use of multiple snapshots of aerial photography and photogrammetrically derived digital terrain elevation models to quantify boulder and floodplain geometries within the spectacular setting of Douglas Tompkins National Park in North Patagonia that protects Coastal Temperate Rainforests. This master project will be supervised by Christian Mohr and Oliver Korup, thus offering an opportunity to be actively involved in exciting ongoing research. Interested? Contact cmohr@uni-potsdam.