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For living old trees growing in northern boreal sites (62 -69°N) in Fennoscandia, Femundsmarka (in south eastern Norway; FE) and Sivakkovaara (in south eastern Finland; SI) all at similar latitudes, and in Kessi (in northern Finland; KE) at a higher latitude, 400 years of isotope ratio series of carbon, oxygen and hydrogen were produced. We analysed the correlations of stable isotope ratios of tree ring celluloses with local climate parameters for the periods which instrumental data were available, and compared the temporal changes in isotope series at sites and between sites. Correlations between isotope ratios and climate parameters during the 20th century were strongest and positive for carbon and oxygen with summer (Jul-Aug) temperature, and weaker and negative with precipitation. Hydrogen isotope ratios correlated positively with summer (Jul) temperatures at both southern sites (FE and SI), but negatively (Jun) at the northern site (KE). The annual isotope ratios between different elements in the same trees in the 20th century showed the strongest correlations between oxygen and carbon at all sites and between hydrogen and carbon at southern sites (FE and SI). The correlation between hydrogen and oxygen was weaker; positive at FE, negative at KE and negligible at SI. During the full 400 years the correlations between the elements varied greatly among different centuries. Common patterns in isotope series between sites were found in variations of hydrogen isotope ratios in both southern sites (FE and SI) in the 20th century showing positive correlation with summer (JJA) North Atlantic Oscillations.

Theme: O06. Stable isotopes in dendrochronology

Presentation Type: Poster

DENDROECOLOGY OF SEBASTIANIA COMMERSONIANA (BAILL.) L.B. SM. & DOWNS IN AN ATLANTIC FOREST REMNANT AFFECTED BY AN OIL SPILL EVENT IN SOUTHERN BRAZIL

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A dendroecological study of *Sebastiania commersoniana* (Euphorbiaceae) was conducted in a remnant of Alluvial Araucaria Forest (Atlantic Forest), with environmental and floristic characteristics common to southern Brazil, Uruguay and parts of Argentina and Paraguay. The species is one of the most abundant and representative of this forest type. The study area is located in Araucaria (25°34'02.5' S; 49°20'53.5' W), Parana, Brazil, near a floodplain forest heavily impacted by a spill of four million liters of crude oil by Petro leo Brasileiro S.A. in 2000. The research objective was to evaluate differences in water table height and the possible effects of the oil spill on the growth in stem diameter of the species. Three radial time series from the wood of individuals were collected using increment probes in two geographical locations, both on hydromorphic soils (Haplic Gleisol), but differing in the depth of the water table: Site 1 (n = 13) of average depth and Site 2 (n = 6) of shallow depth. Radial time series were developed and correlated with the climate data in the region. Results showed that individuals from both sites had similar growth patterns, that of decreasing radial increment over time. Precipitation influenced growth only in Site 1. Minimum temperature is a limiting factor, while maximum temperatures are important in the early growth period. On the other hand, in warmer months the occurrence of very high temperatures can be limiting, likely promoting transpiration losses.

Theme: O01. Tropical dendrochronology

Presentation Type: Poster

ANALYSIS OF GROWTH RINGS OF SEBASTIANIA COMMERSONIANA IN A RIPARIAN FOREST FROM THE RAIN FOREST BIOME IN SOUTHERN BRAZIL

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