Subtropical Ogasawara coral reveals abrupt early 20th century freshening in the western North Pacific

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We reconstructed annually-resolved salinity variations in the western North Pacific Ocean since 1873, based on records of d18O, Sr/Ca and U/Ca in a subtropical coral taken from Chichi-jima Island of the Ogasawara Islands (Felish et al., in press). An abrupt regime shift towards fresher surface ocean conditions occurred between 1905 and 1910. The cause is a weakening of the winds that drive the Kuroshio Current system and the associated subtropical gyre circulation. This abrupt freshening was followed by a shift towards lower sea-ice export from the Arctic Ocean to the North Atlantic a few years later. The potential of such natural regime shifts in surface ocean salinity and associated large-scale teleconnections should be considered in climate predictions for the coming decades.

Reference: Felis, T., Suzuki, A., Kuhnert, H., Dima, M., Lohmann, G., Kawahata, H. (in press) Subtropical coral reveals abrupt early 20th century freshening in the western North Pacific Ocean. Geology.