

## **Reconstruction of the Amazon Basin Effective Moisture Availability over the Past 14,000 Years**

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Quantifying the moisture history of the Amazon Basin is essential for understanding the cause of rain forest diversity and its potential as a methane source. We reconstructed the Amazon River outflow history for the past 14,000 years to provide a moisture budget for the river drainage basin. The oxygen isotope composition of planktonic foraminifera recovered from a marine sediment core in a region of Amazon River discharge shows that the Amazon Basin was extremely dry during the Younger Dryas, with the discharge reduced by at least 40% as compared with that of today. After the Younger Dryas, a meltwater-driven discharge event was followed by a steady increase in the Amazon Basin effective moisture throughout the Holocene.

Figure 1. From top to bottom, data are shown for the following: the Amazon Fan ODP Site 942C *N. dutetrei*  $\Delta\delta^{18}\text{O}$  record of discharge from the Amazon river (the percentage of modern Amazon River discharge is the conservative Younger Dryas estimate), the Peruvian Lake Junin  $\Delta\delta^{18}\text{O}$  record of effective moisture, the Greenland Ice Sheet Project 2 (GISP2) ice core atmospheric methane record, and the summer insolation changes at  $10^\circ\text{S}$ .

