# Earth's natural fertilizer: Tracing phosphorus in dust from the Sahara towards America's tropical rain forests

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Saharan dust that is transported over the Atlantic Ocean provides an important input of phosphorus (P) to the oligotrophic waters of ocean _ENREF_3_ENREF_3and the P-depleted rain forests of America. In order to establish more firmly the role of Saharan dust events as P suppliers, the dust-P sources needs to be identified. From analysis of phosphate oxygen isotopes of all the major Saharan dust events of 2011 over the North-Eastern Atlantic, supported by remote-sensing imagery, we infer that the dust-P originates from widespread sedimentary sources and magmatic P “hot-spots”, in which the latter enrich the dust in bioavailable-P. We also characterized the atmospheric dust P across a seasonal cycle in a tropical lowland rain forest in Panama. Our measurements from a yearly dust sampling campaign indicate that long-range transport of Saharan dust constitutes an important P input to Panamanian tropical forests. Our results provide have important implications for our understanding of modern nutrient budgets.