

Alexander von Humboldt: from mining inspector to founding father of plant geography, and influencer of 21st century science

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Alexander von Humboldt is considered as founding father of many things, but perhaps the biggest mark that he has left is laying out the foundation for the field of biogeography. Biogeography is interdisciplinary in approach and aims at explaining biological diversity by combining geology, geography, biology, and climate. Although Humboldt trained as mining inspector, he had a keen interest in botany. On the slopes of the Chimborazo volcano (Ecuador) he famously observed that plants were grouped according to environmental and altitudinal gradients and concluded that their location is defined by changing abiotic variables. This was a paradigm shift at the time, and diverted from the traditional perception of species as single entities that were disconnected from their surroundings. In his later years Humboldt combined these and other observations in the *Naturgemälde* (published in *Kosmos*), which synthesized his holistic approach to the natural sciences. In the 21st century this approach is still current and has gone through a true revival. Nowadays, state-of-the-art geological, molecular and ecological data are available from ever more complete global databases and provide new insights into historical biogeography. Surely, these developments would have delighted Humboldt, as he was a great advocate for data collection, sharing and archiving. Across the globe the Humboldtian holistic approach to science in recent years has led to a new and improved understanding of how biodiversity patterns in mountains and lowlands evolved through time under the influence of abiotic and biotic processes. In my presentation I will review examples that show that Humboldt's heritage is still pertinent 250 years after he was born.