



Photo: Andrew Crozier/MPI for Chemistry

## High-Tech in Vast Expanses

Its tip appears to reach all the way up to the stars. It may not be quite that tall, but the Amazonian Tall Tower Observatory, known as ATTO, is nonetheless a project of superlatives: 15,000 individual components, 24,000 screws and bolts, a total weight of 142 tons on a ground area of a mere 3 by 3 meters, all pretensioned using a total of 26 kilometers of steel cable. And at 323 meters, ATTO is taller than the Eiffel Tower. The structure, located 150 kilometers northeast of Manaus in the middle of virtually impenetrable Amazonian rainforest, was erected in just one year.

However, it's not only its height that makes ATTO so special; a crucial factor is the ecosystem that surrounds the tower: Like its counterpart, ZOTTO, the 304-meter-tall measurement tower in the Siberian taiga, ATTO is far removed from the influence of civilization. Scientists can therefore expect it to be provided with largely unadulterated data on climate events in the atmosphere above the Earth's largest uninterrupted expanse of forest.

Although all of the measurement equipment has not yet been installed in the tower, it will soon provide a constant stream of data about greenhouse gases, aerosol particles, cloud properties, boundary-layer processes and the transport of air masses. The researchers are particularly interested in the interaction between the rainforest and the masses of air streaming above it. After all, the Amazon region is of global importance for the climate, and too little is currently known about the role the rainforest plays in the formation of aerosol particles and thus cloud formation.

The Max Planck Institute for Chemistry in Mainz and the Max Planck Institute for Biogeochemistry in Jena are partners in the joint German-Brazilian ATTO project. The measurement data recorded by ATTO flows into current models for forecasting climate development and will also soon help politicians develop environmental policy regulations and global climate goals.

 <https://www.youtube.com/watch?t=5&v=e--sa5uFGBo>