First tests at the Tambopata Flux Tower for the Andesflux-Network

As a project partner of the PUCP in particular the Institue for Nature, Earth and Energy led by Eric Cosio, we are working on supporting the build-up of an infrastructure to connect multiple eddy covariance towers located in the Amazon basin into one network and also develop and install LoRaWAN Hardware, which is used to gather information from the area surrounding the towers.

Remote Connection

In the last couple of days, we were installing the first system at the tower in Tambopata. The central part which enables us to establish a remote connection to the towers is the Teltonika RUT 955 4G Router.

The problem before was that you were unable to communicate with the tower before. All the measured data had to be get in person at the tower itself, which is very time-consuming and inefficient. The way the new router is configured allows the researchers at the PUCP in Lima, Penn State University, and other collaborating institutes to connect remotely via a private VPN to all the installed devices at the tower, the most important one being the LiCor Smartflux 2.

Later on, in the project, it is possible to connect other towers to this VPN as well which would make it the central hub for data exchange in the Andesflux tower network.

The first test has proven that it works as intended, but only long-term use can show if it is suitable for the given task in the long run.

LoRaWAN

Not only the measured data at the tower itself is important, but also the data that could be gathered around it. LoRaWAN is the perfect technology that would allow such data allocation to be done in a well-proven form factor. As a first test, a LoRaWAN dendrometer reading node has been developed.

To test it under real-world conditions, a LoRaWAN gateway is now installed at the Tambopata tower. As of right writing this post, one dendrometer is located around the tower, with hopefully many more to come. The node first has to prove itself to withstrain the very harsh environment of the Amazon jungle while also delivering usable information.

If you want to learn more about our current activities at the Tambopata tower you can continue reading here: AndesFlux

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