Atmospheric leptons are of continuous interest for several scientific communities. They constitute a part of secondary particles emerging from giant particle cascades initiated by cosmic rays impinging on the atmosphere at high altitudes, called extensive air showers. The interest comes mainly due to two factors: the span of available energies ranging from MeV to multi-PeV and the permanent particle beam at no cost. A striking limitation for experiments, which study fundamental physics indirectly with atmospheric neutrinos, is the precision to which expected fluxes can be predicted. Dominating uncertainties originate from not well understood forward hadronic interactions and the flux of cosmic rays. I will show highlights of recent results and the progress on the estimation of the flux uncertainties, where our novel combined fit to cosmic ray data allows us to get one of the dominant theoretical uncertainties under control.