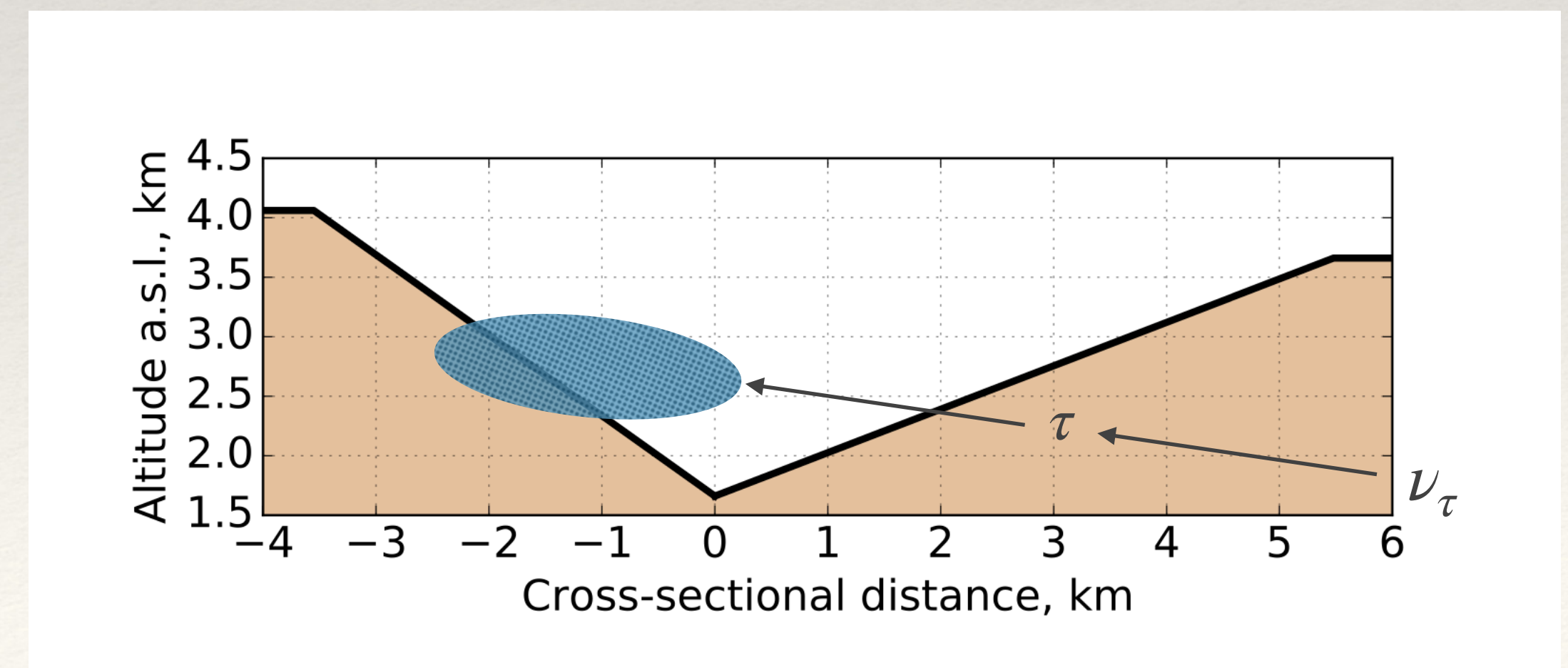Pavel Z. for TAMBO collaboration with Jeff L. And Will T.

What is TAMBO

- ❖ Tau Air-shower Mountain Based Observatory (TAMBO)

- ❖ Colca Valley, Peru

- ❖ Tau neutrinos interact inside Earth, produce tau lepton which decays in air, inside valley

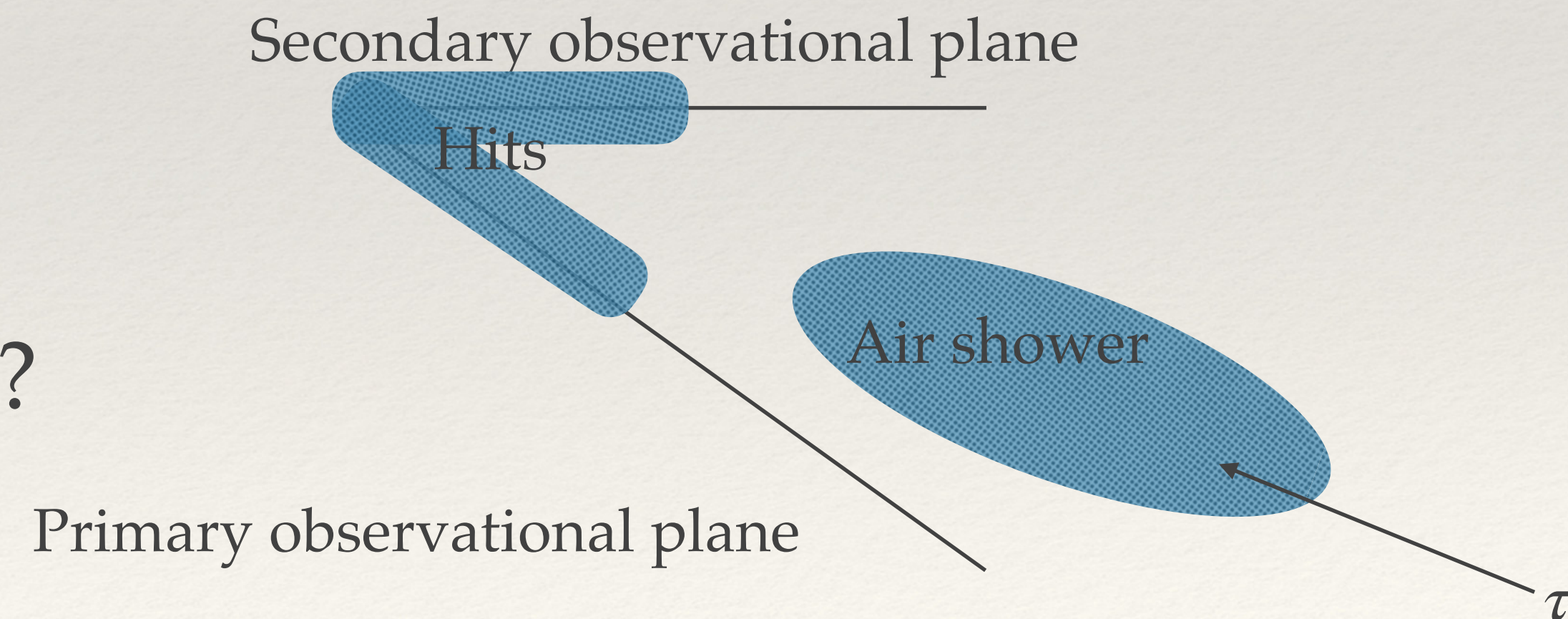- ❖ Record air showers via scintillator panels/water tanks

Code

❖ What we did: took **corsika.cpp** example and configured observational plane to be in arbitrary orientation

❖ Changes: implemented Colca Valley atmospheric profile, local magnetic field, changed calculation for shower axis

❖ Showeraxis calculation intersection point doesn't work for upward going showers (calculating the end point)

❖ Installed/implemented FLUKA successfully

Questions

- Previously, when trying to use taus as primary, they wouldn't decay even if I force interaction

  - So now, we let proposal handle the tau decay and then simulate the air showers from decay of secondary particles

- What are typical energy cuts?

- How long are typical showers at energies of ~1 PeV?

- What optimizations can be done to speed things up?

Questions cont.

❖ Showeraxis needs to be greater than inj-core distance, why? How to know what's the optimal distance?

❖ Can we make multiple observational planes? So that we have a horizontal plane at a specified height for a potential speedup.

❖ Recommended visualizations of showers?

Secondary observational plane

Hits

Air shower

Primary observational plane

τ

TAMBO propaganda