



# REINFORCE

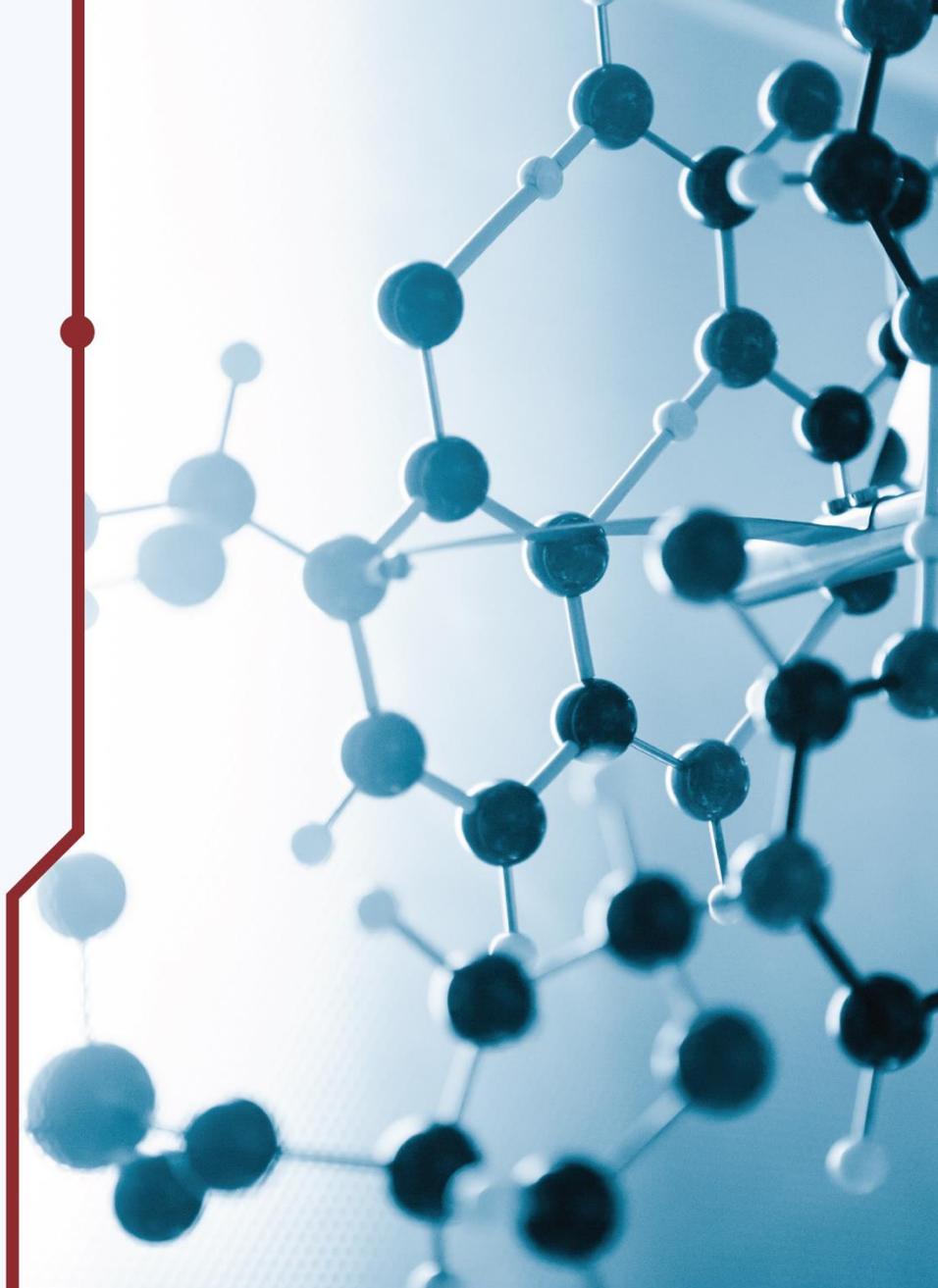
REsearch INfrastructures FOR Citizens in Europe

## Interdisciplinarity at work: volcanology & risk assessment with muons

Marina Rosas-Carbajal

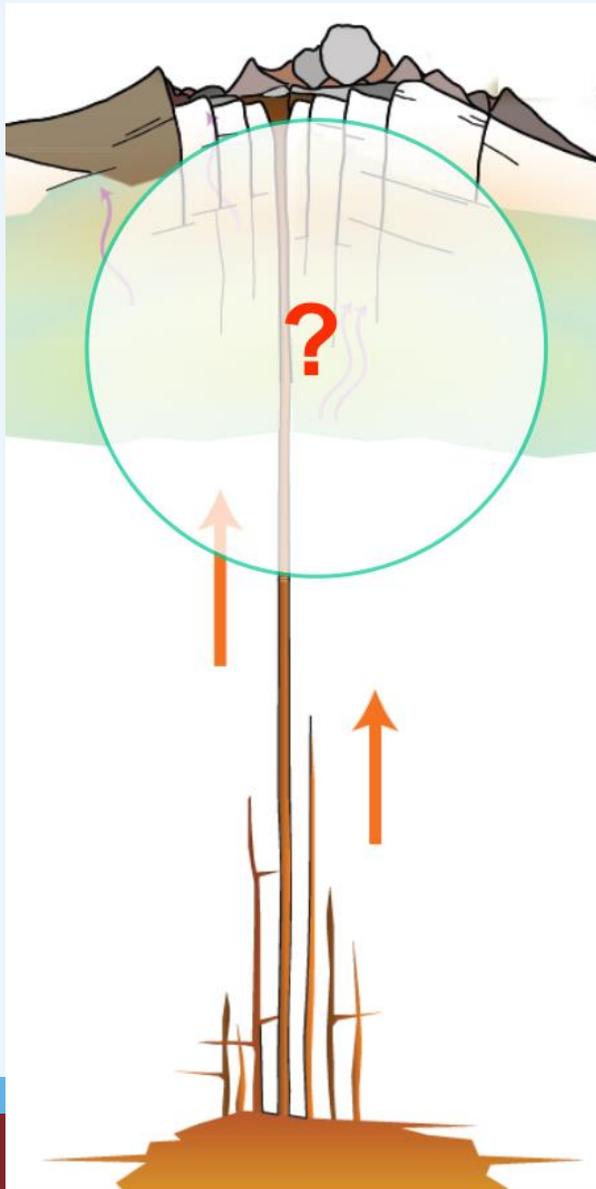


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# Volcanic eruptions



Magmatic  
(e.g. St Helens)



Non-magmatic  
(e.g. Ontake)



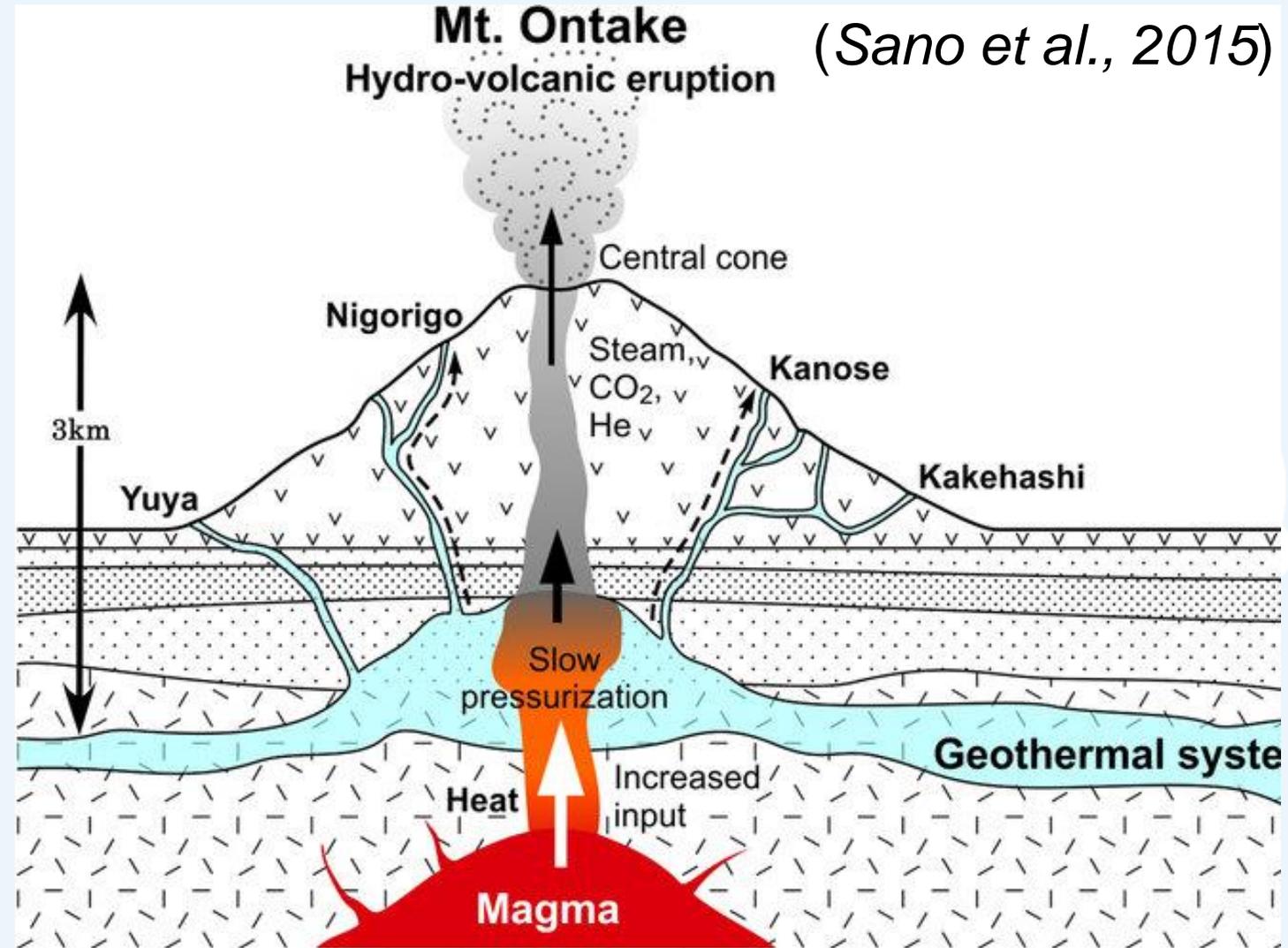


# Open questions

What happens inside a volcano during unrest ?

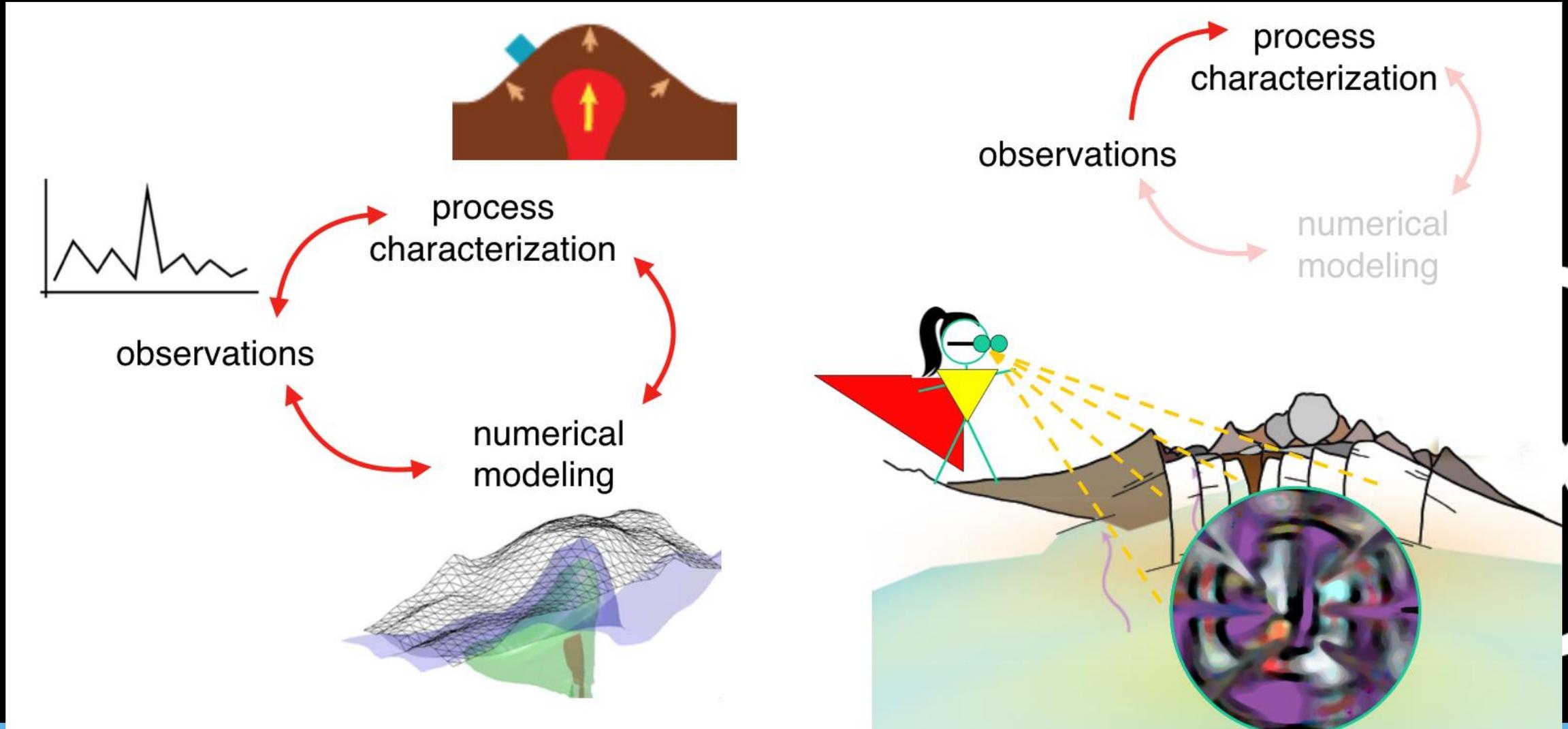
What links between observations and internal activity ?

Which types of unrest are precursors to (which) eruptions?



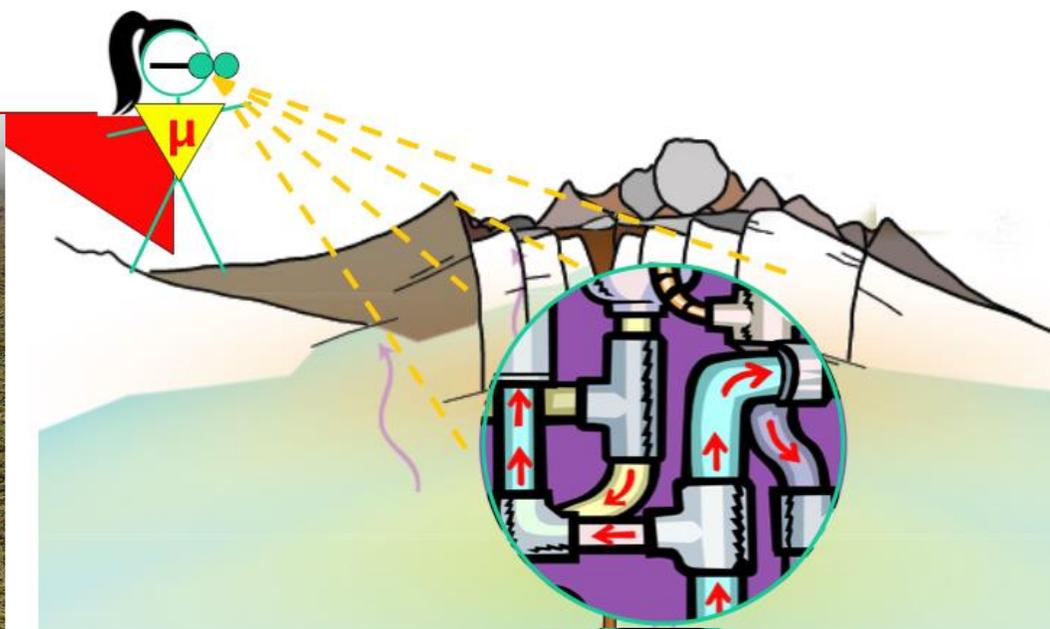
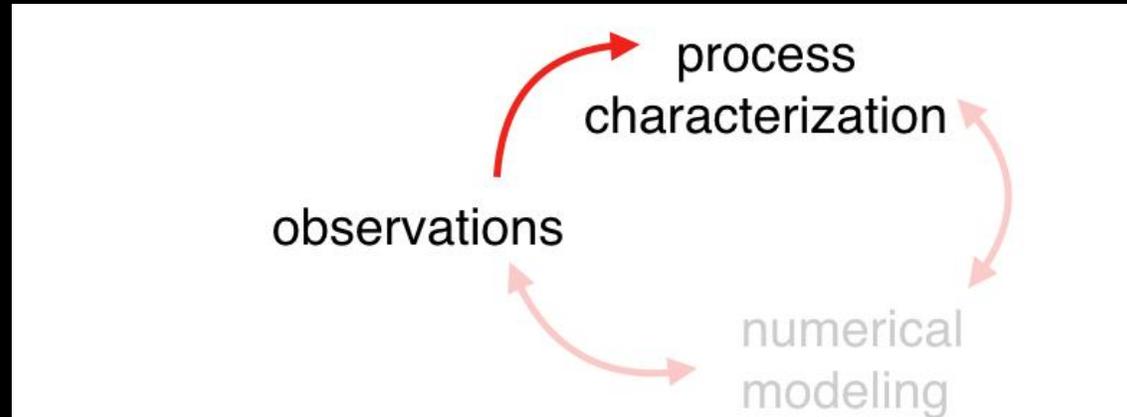
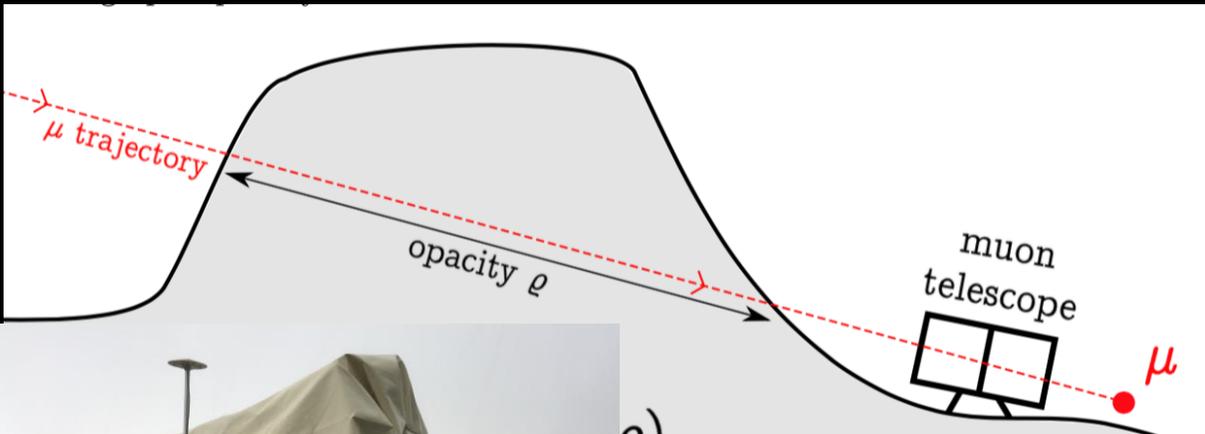


# Integrative approach



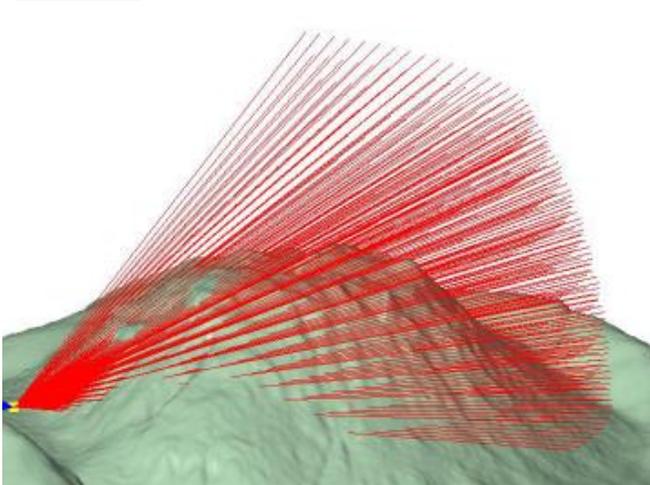
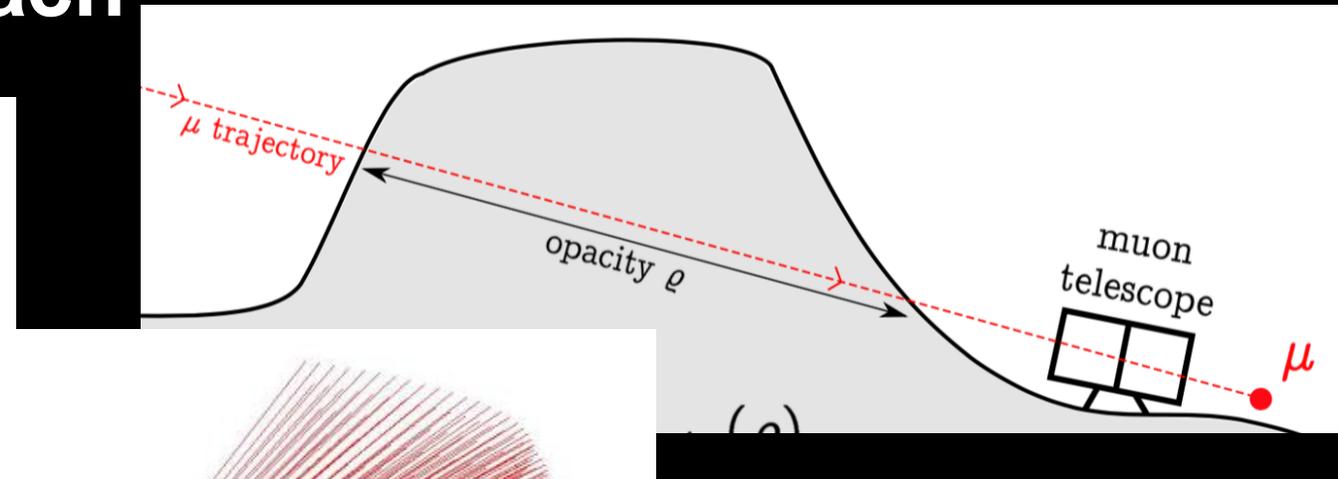
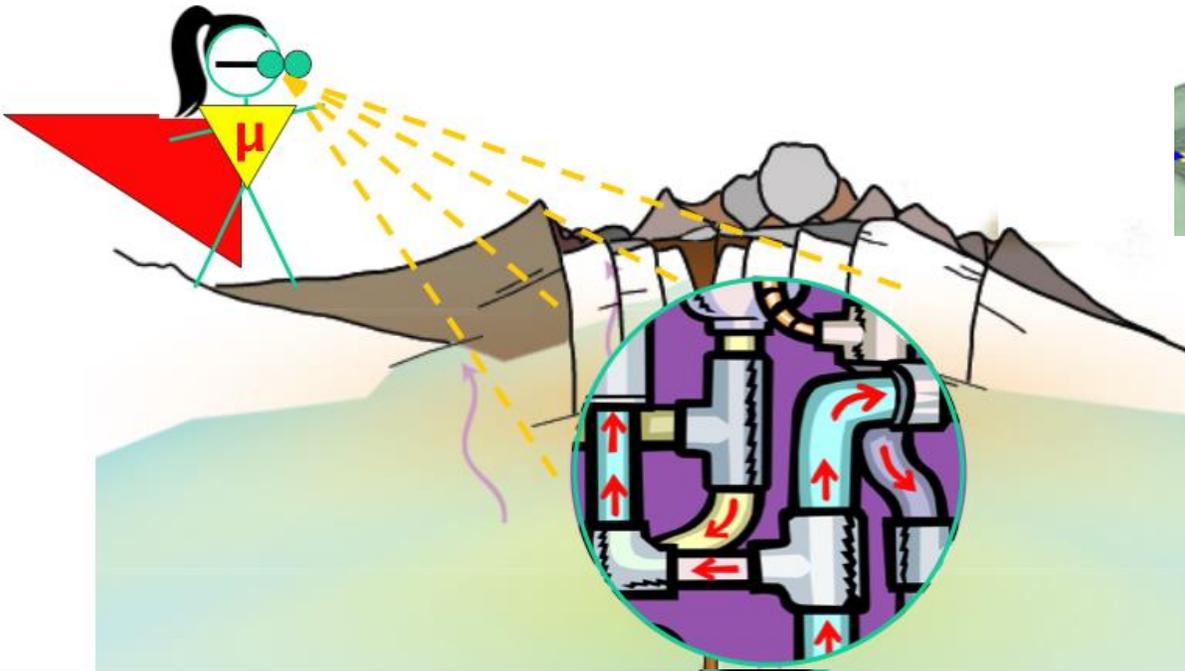
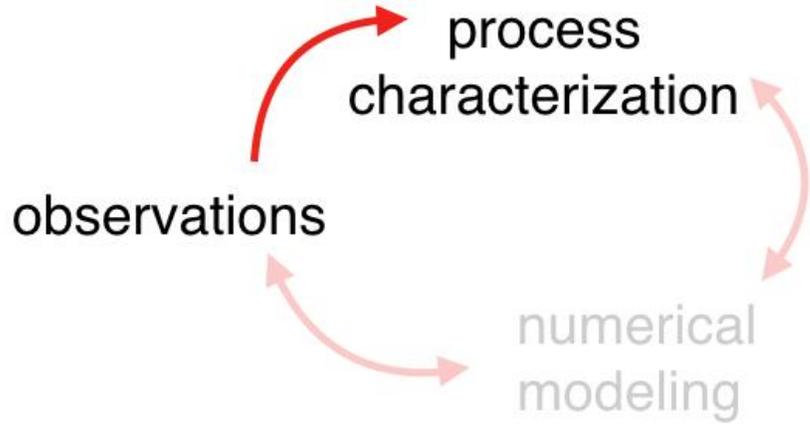


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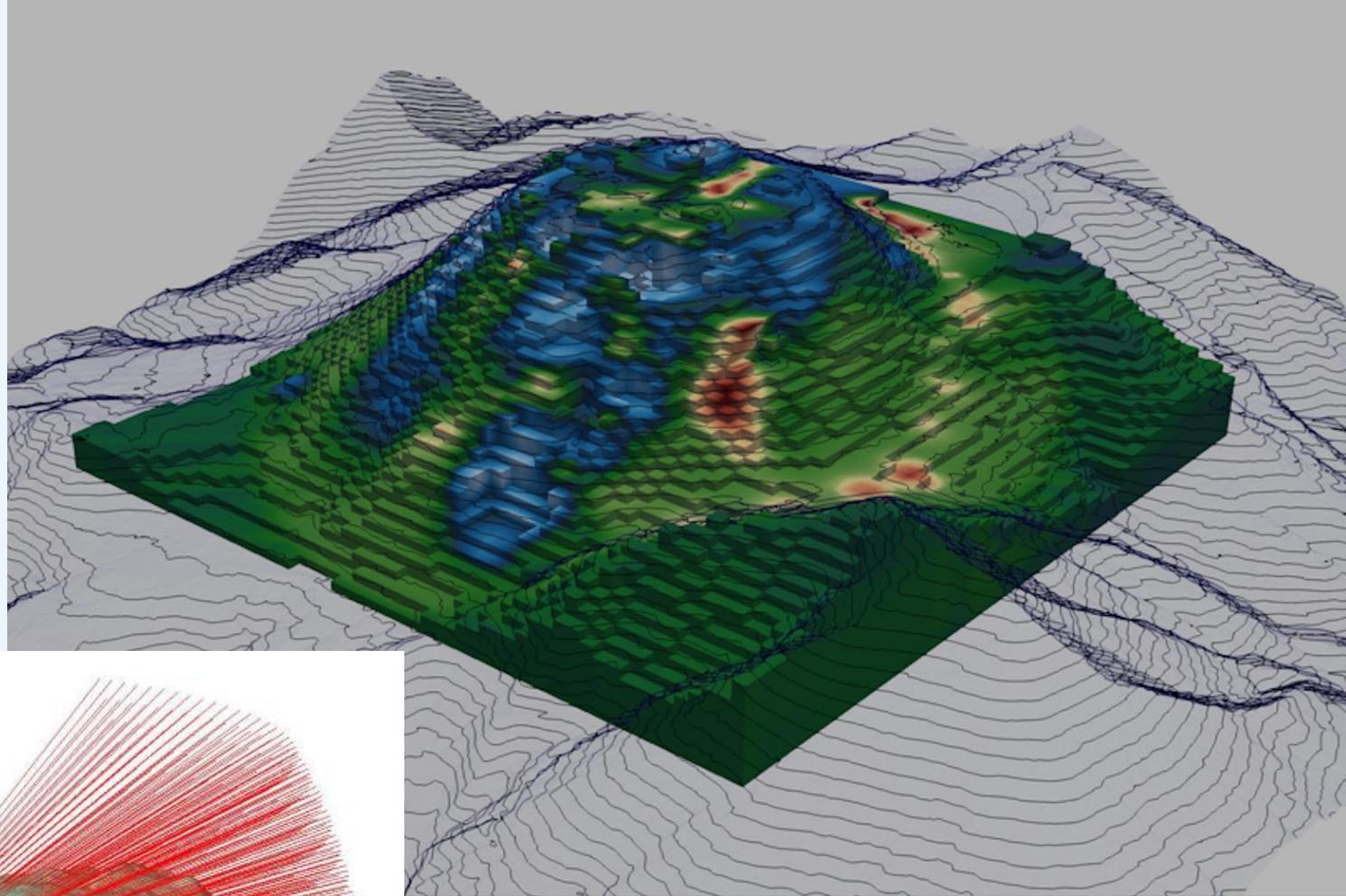
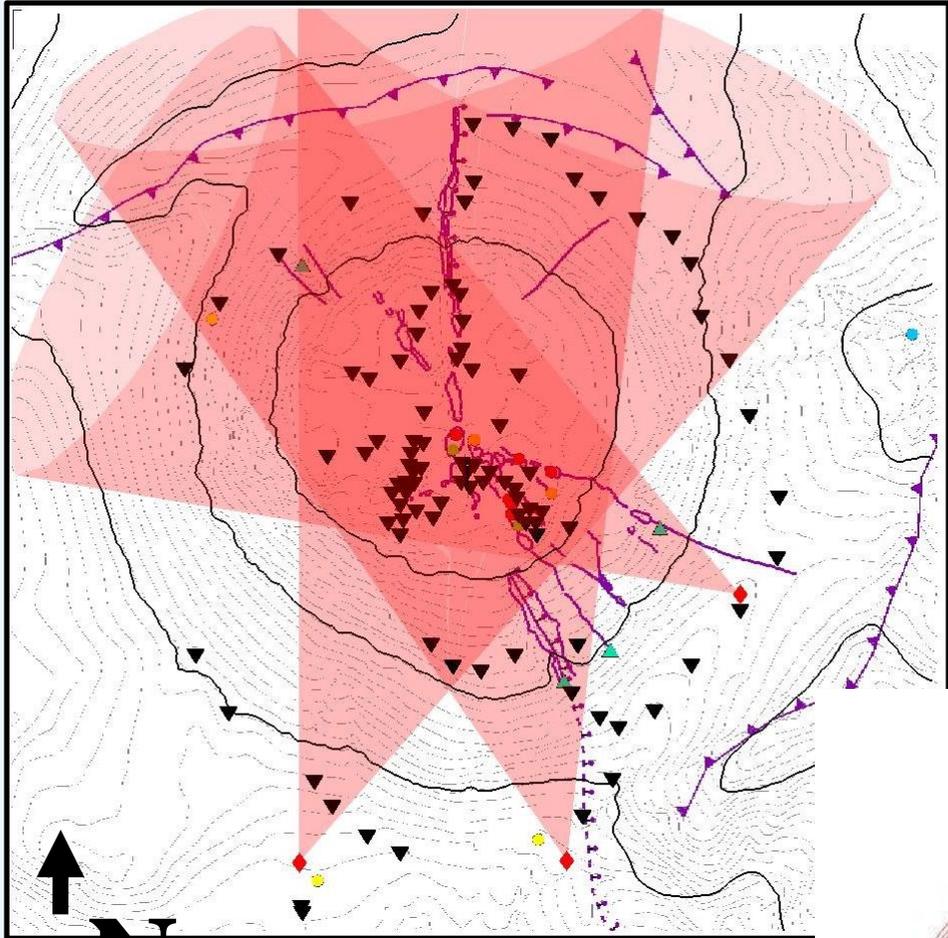


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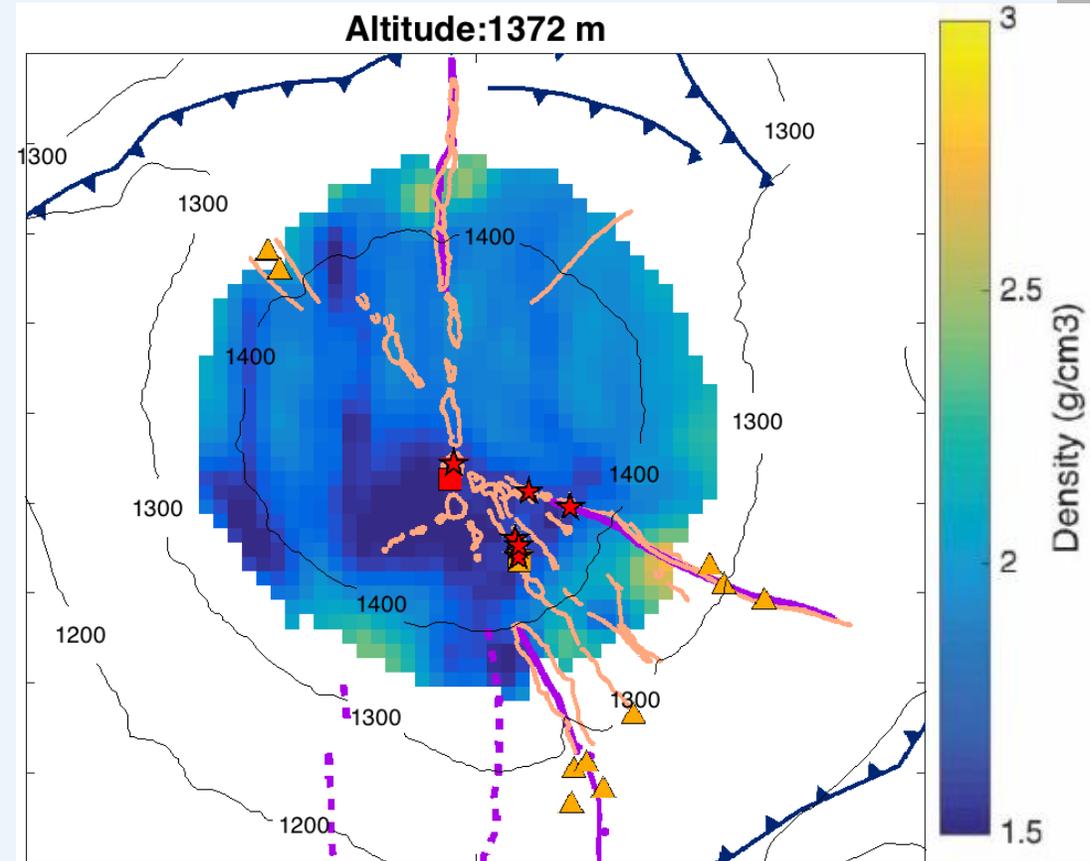


# 3-D Muon tomography

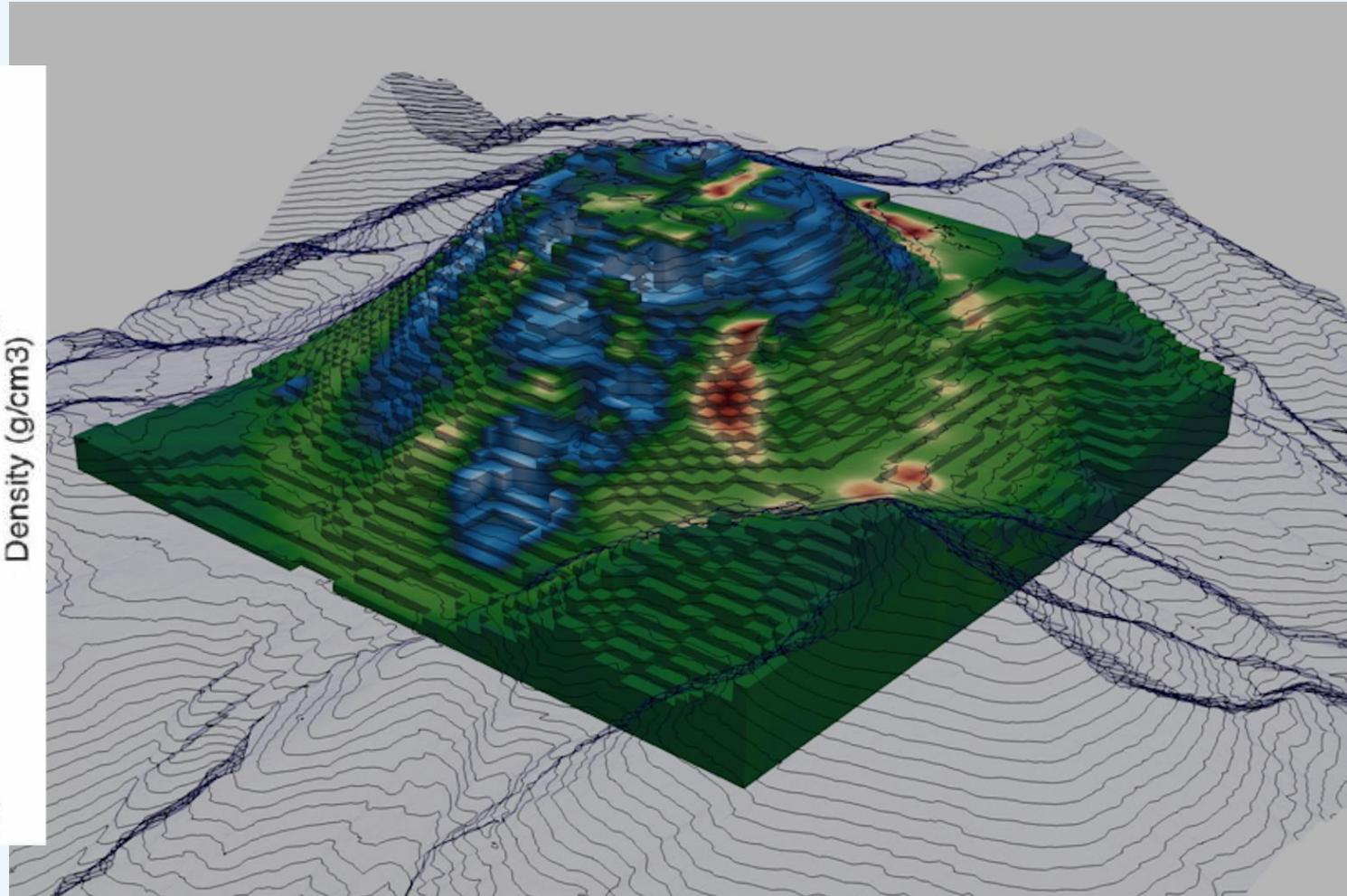




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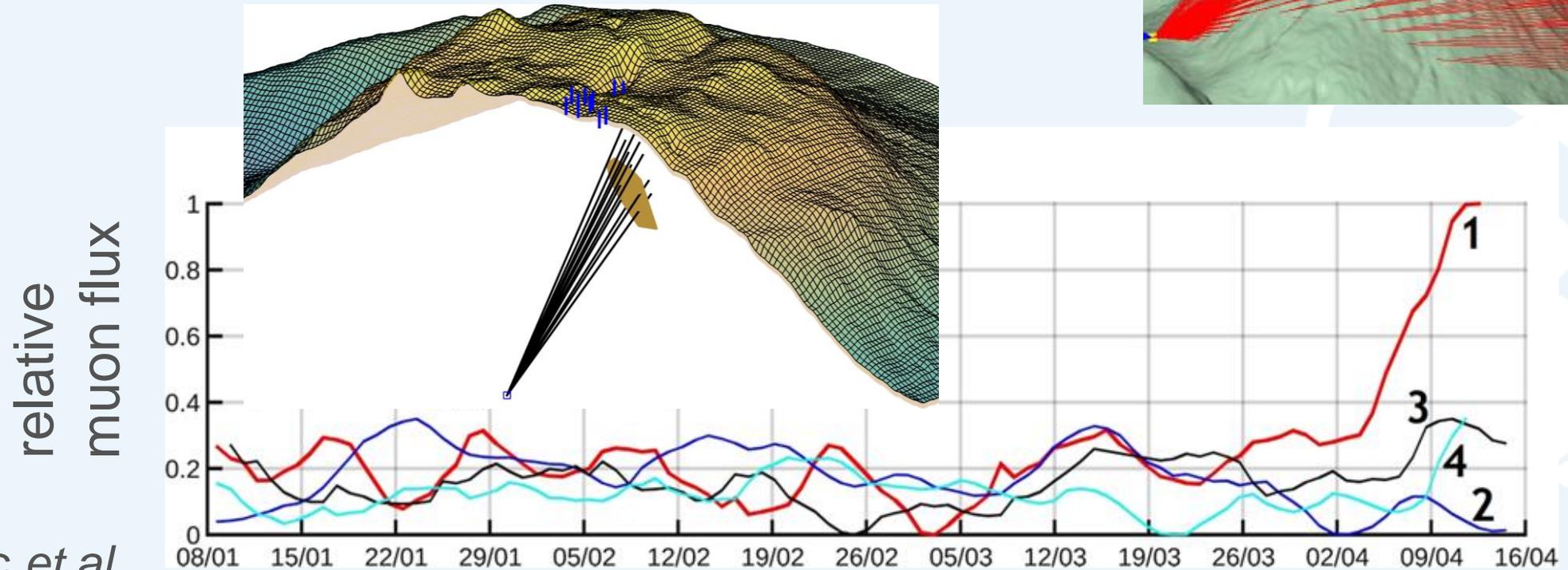
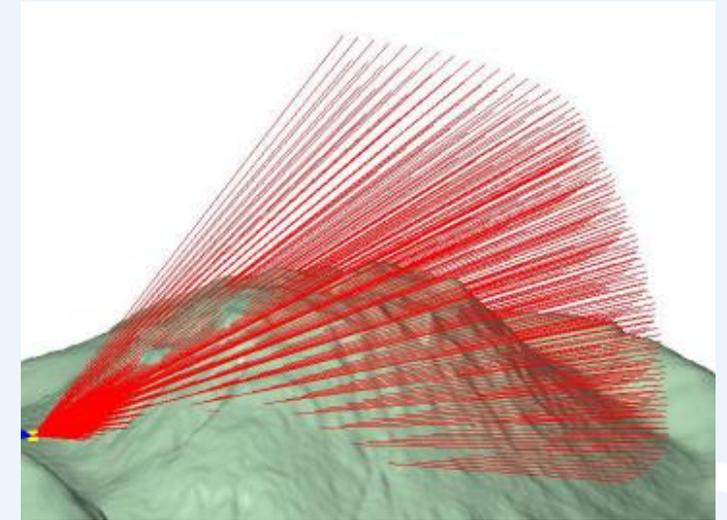


(Rosas-Carbajal *et al.*, 2017)



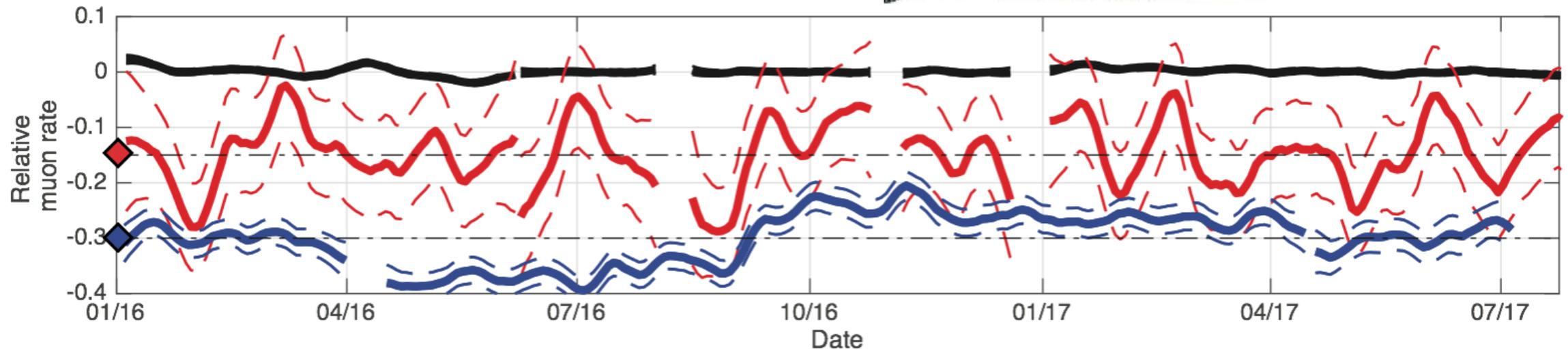
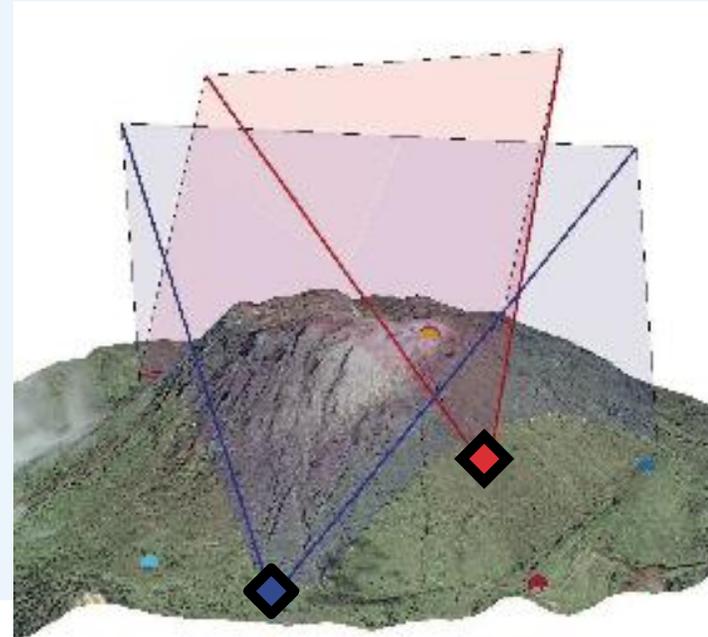


Tracking the dynamics of the volcano hydrothermal system



(LeGonidec *et al.*, 2019)

Two eyes are better than one :)





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# Thank you for your attention !!



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