

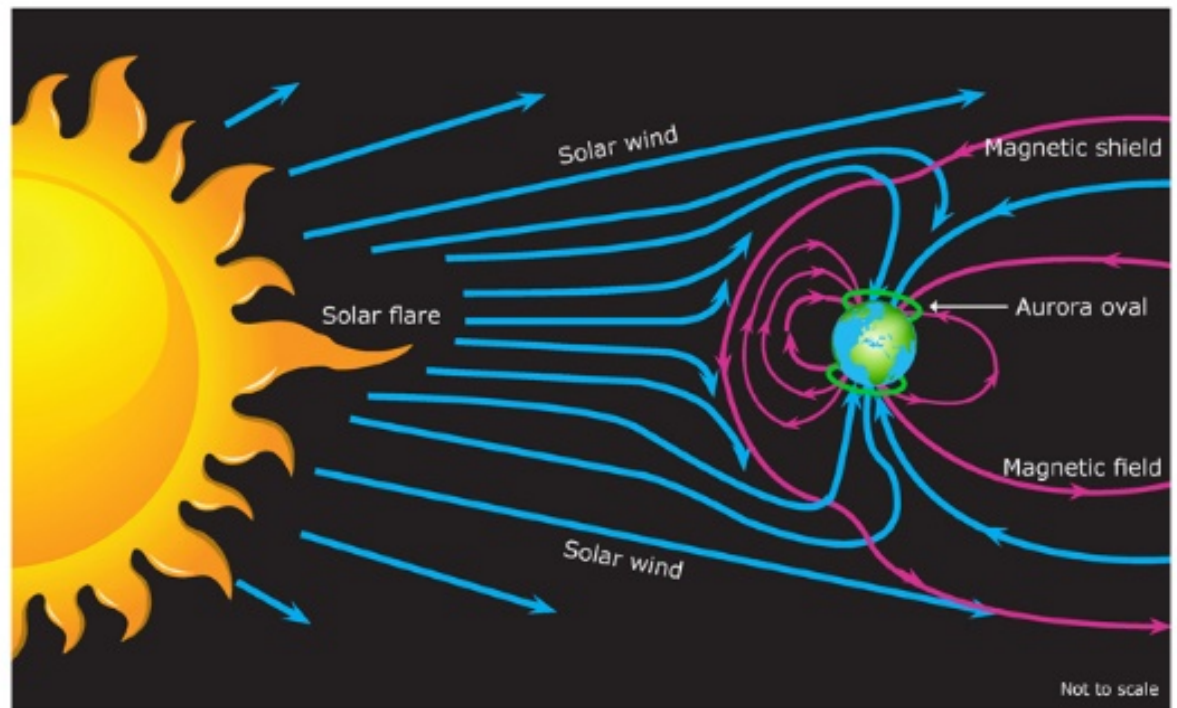
Electromagnetic Tools for Imaging Fluids Underground

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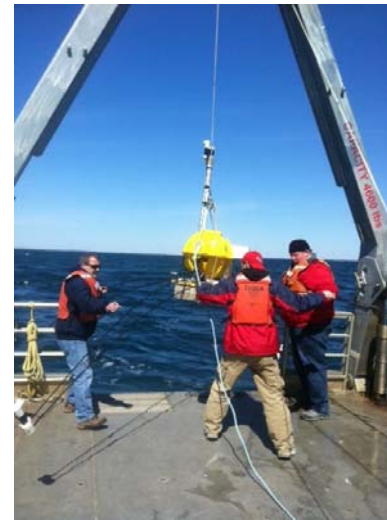
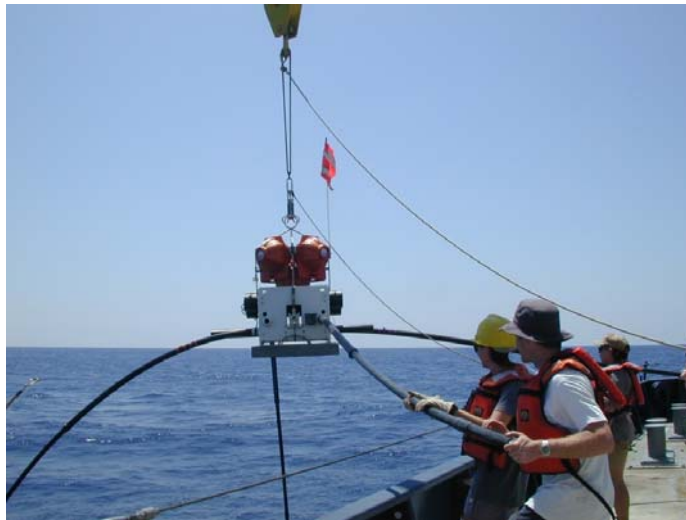
How do we measure conductivity?

- Magnetotellurics
- Controlled Source EM



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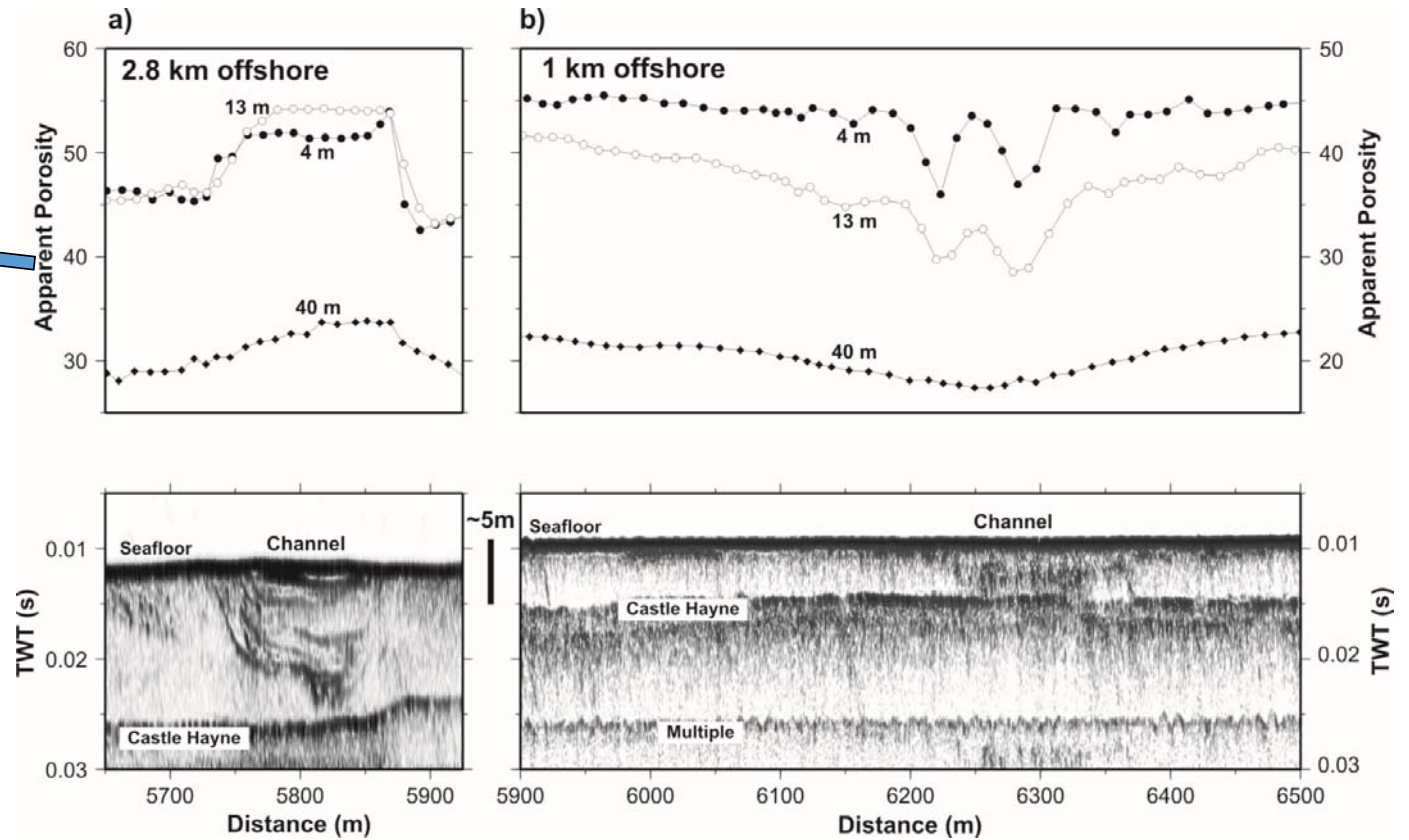
MT instruments



Shallow Imaging: CSEM

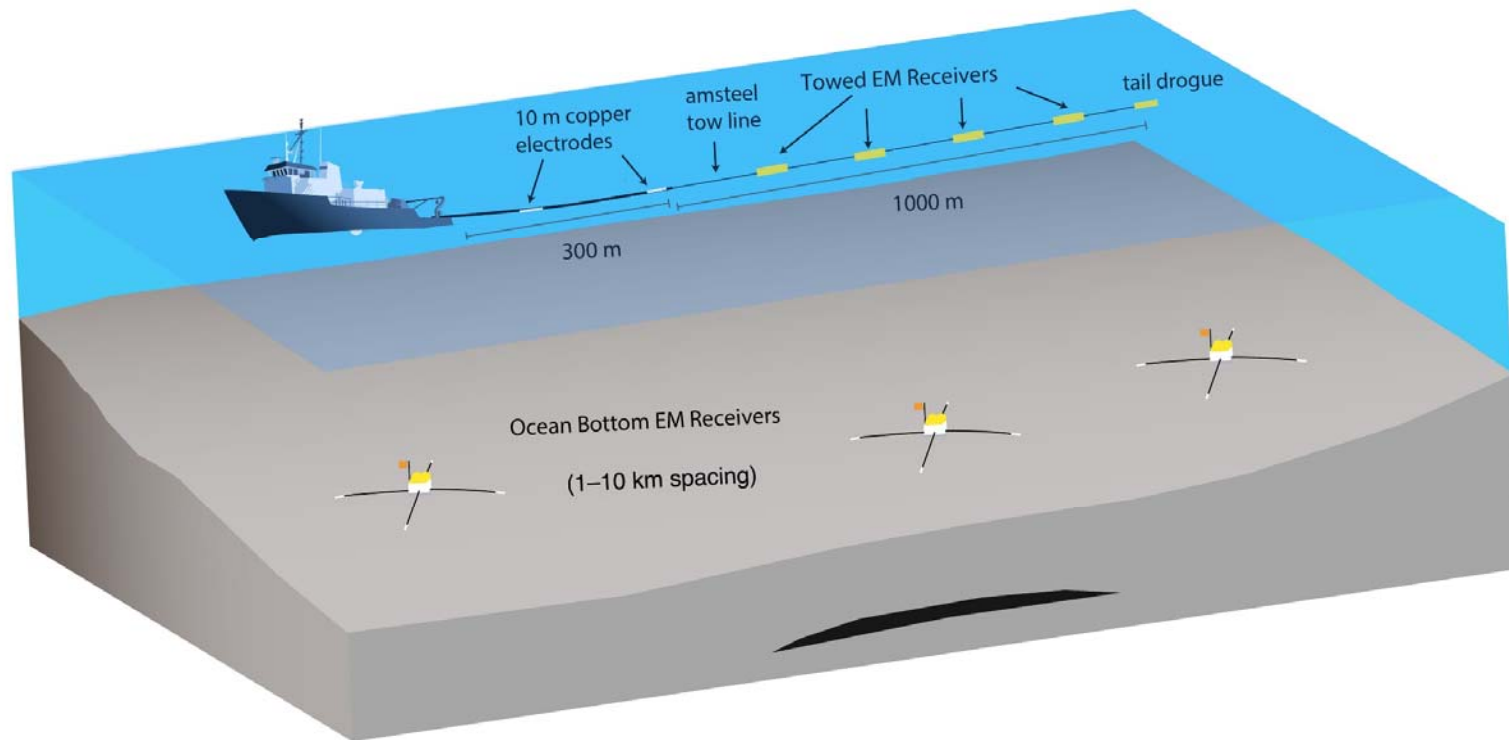


Nearshore Work: CSEM

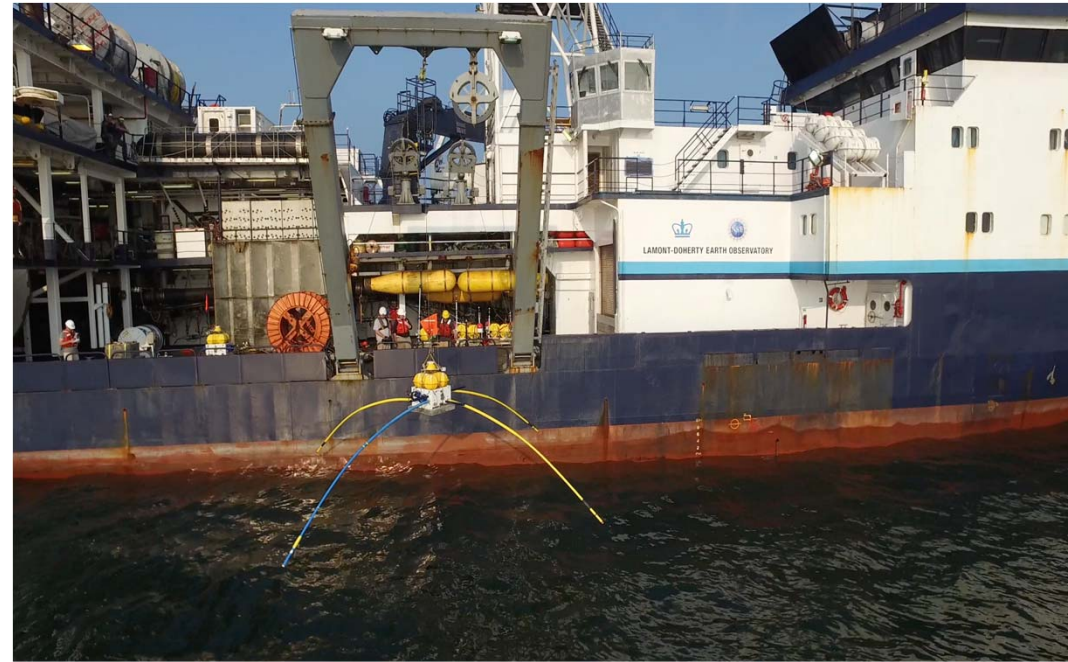


Mulligan et al., (2007)

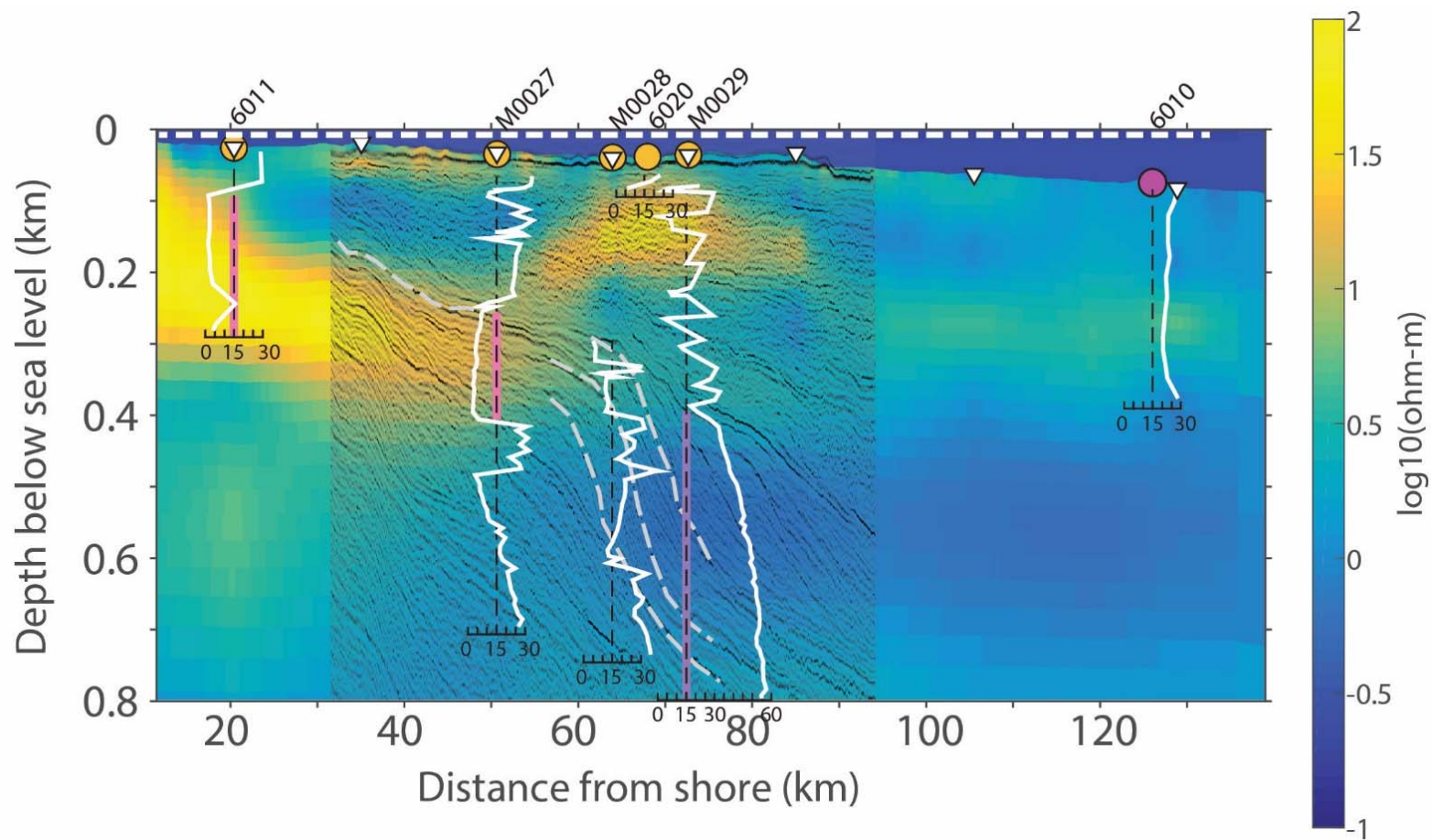
Controlled Source EM Method



Receivers



New Jersey



A New System

In Collaboration with Alan Chave (WHOI)

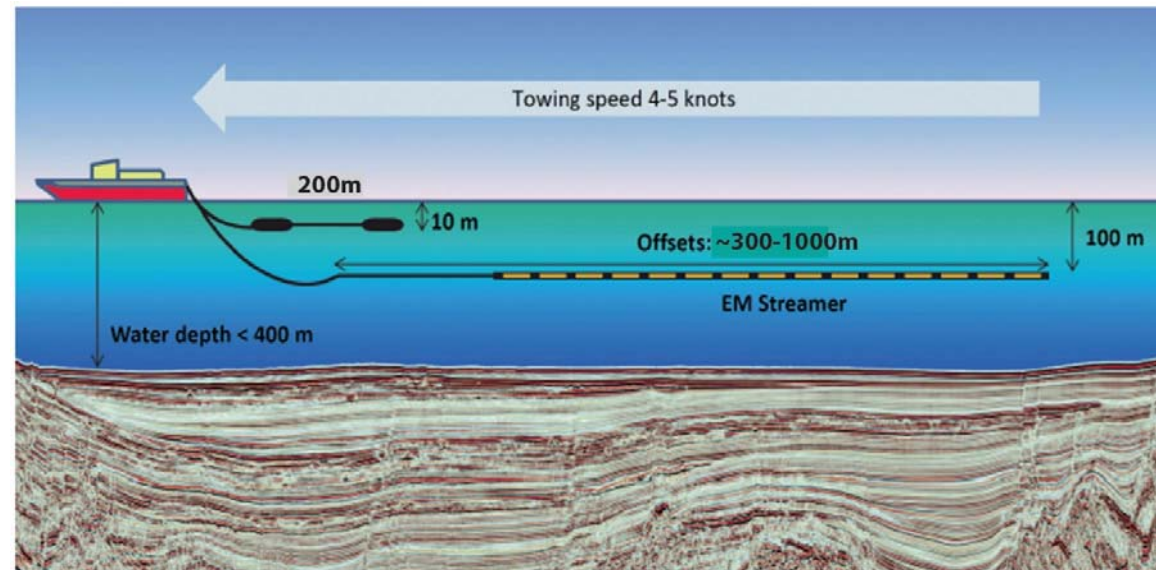
New Towed Streamer System

More receivers (5-10)

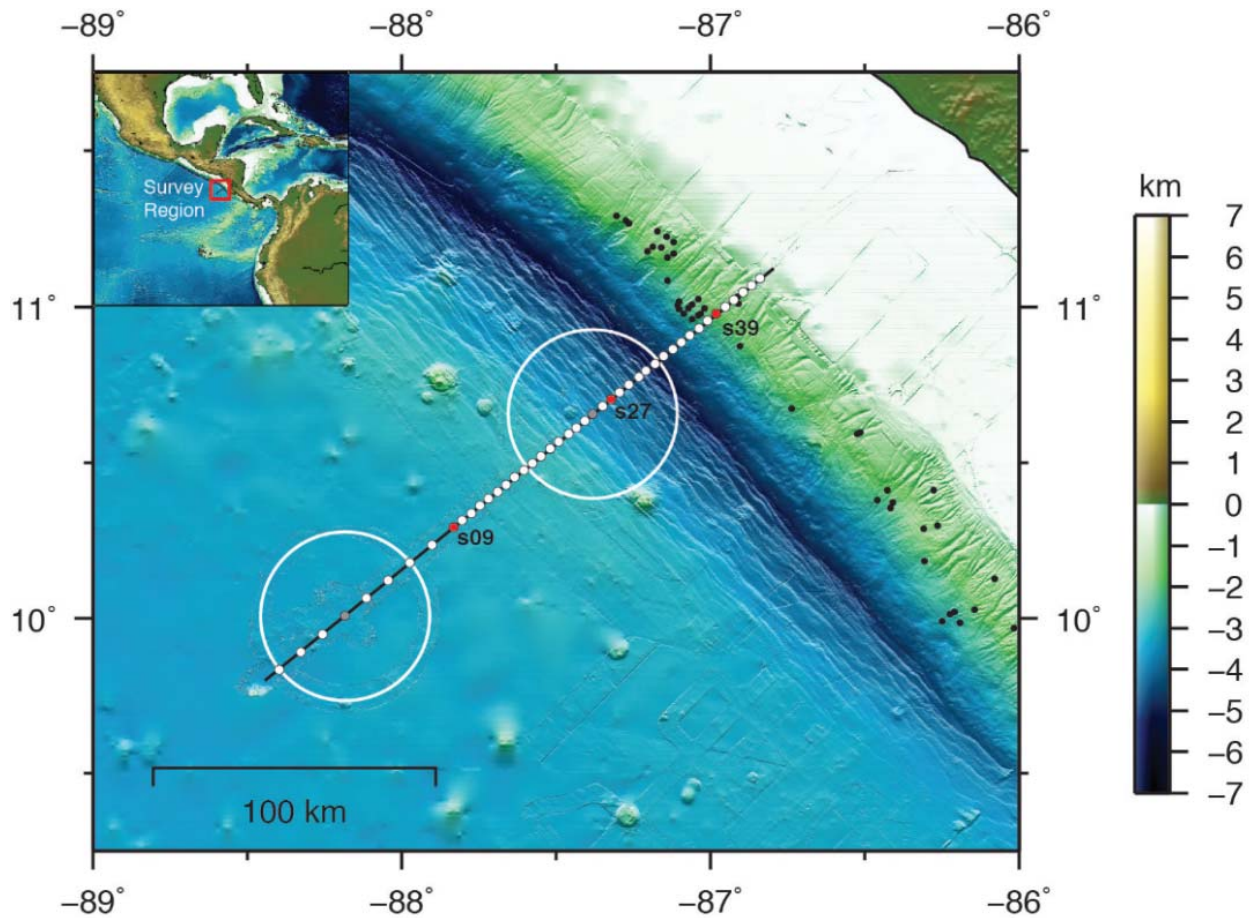
Large source dipole ($\sim 200A$)

Receiver array towed in mid-water column

Real time data retrieval and analysis on board ship

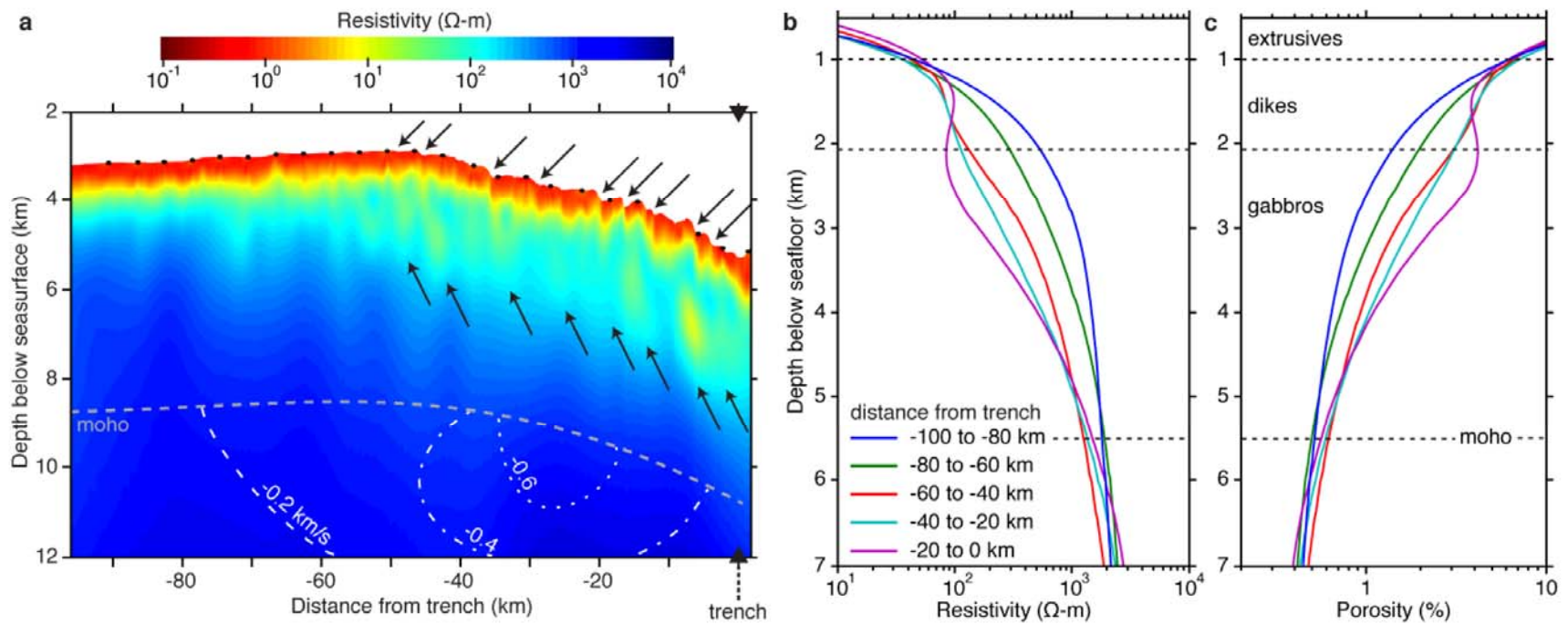


Seafloor morphology and fluids in the crust: Nicaragua



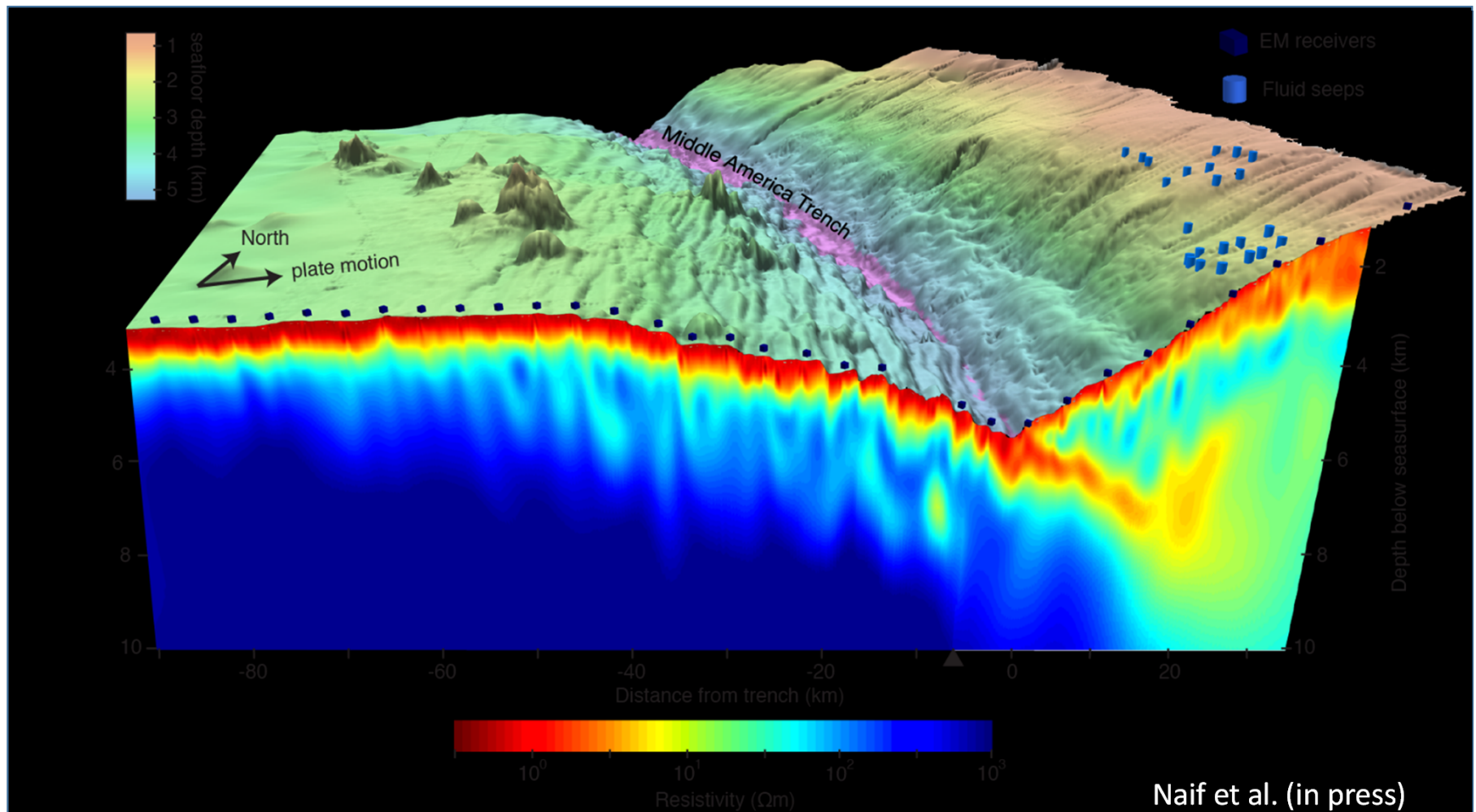
Key et al. (2012)

Resistivity images of fluid inputs



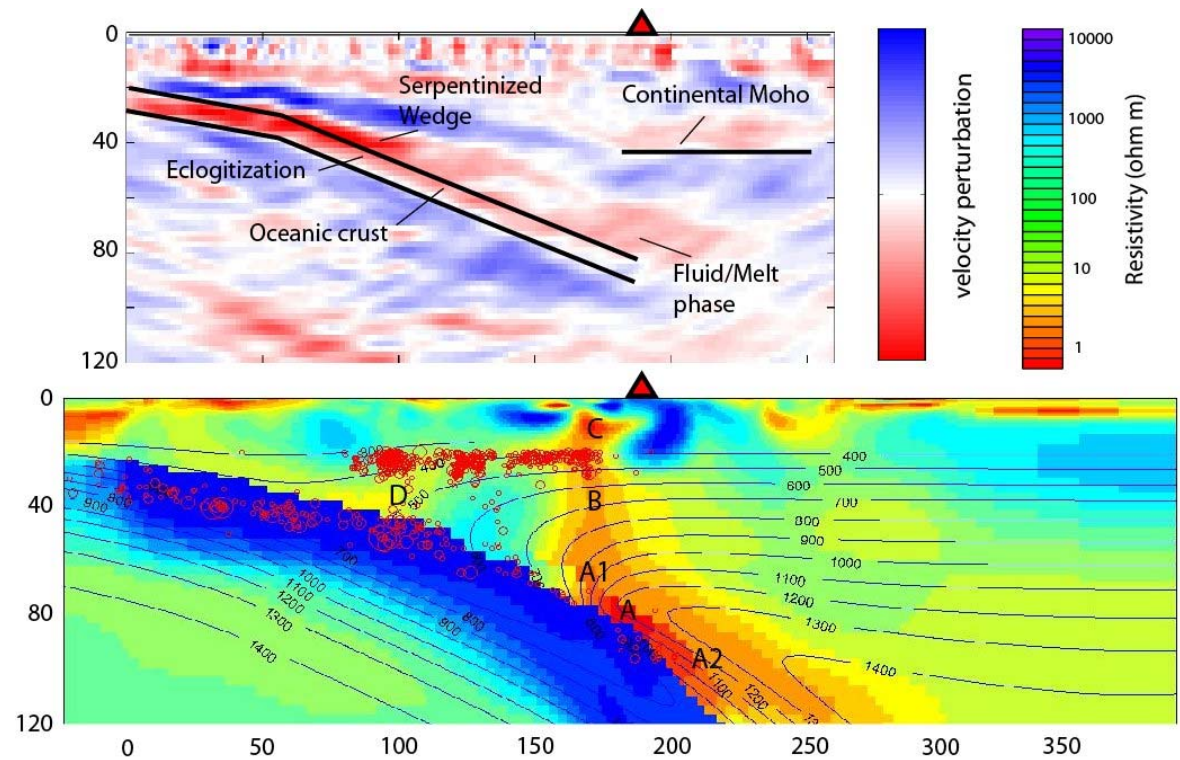
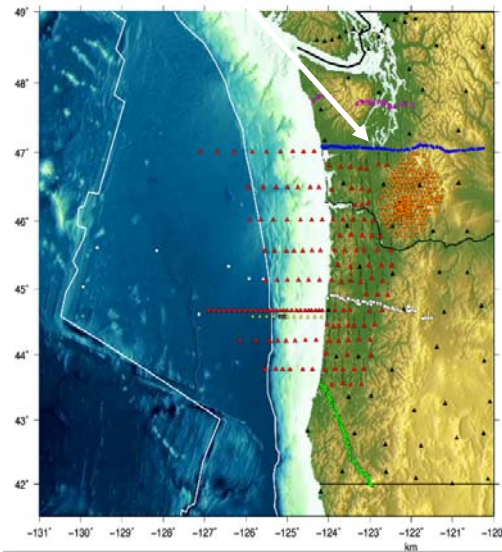
Naif et al. (2015)

Shallow free fluid release



Deeper fluid outputs: Using Magnetotellurics

Café Line, Washington State.



McGary et al., (2014)