GNSS (and some InSAR) in the Desert: A Magma Body and some Hydrology ...

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with contributions from Emily Graves, Andy Newman, and Mark Murray
Volcano Geodesy - Interlude
Volcano Geodesy - Interlude
Socorro Magma Body

Grapenthin et al., in prep.
Socorro Magma Body

Grapenthin et al., in prep.
Socorro Magma Body

Block et al., in prep.
GNSS Reflections

GPS Signal
Transmitted at 1.5 GHz

credit: Kristine Larson
GNSS Reflections

GPS Signal Transmitted at 1.5 GHz

the reflections off bare soil produce this SNR curve

credit: Kristine Larson
GNSS Reflections

GPS Signal Transmitted at 1.5 GHz

the reflections off bare soil produce this SNR curve

add a snow layer

credit: Kristine Larson
GNSS Reflections

The reflections off bare soil produce this SNR curve.

Add a snow layer:

Add vegetation:

Credit: Kristine Larson
GNSS Reflections

the reflections off bare soil produce this SNR curve

add a snow layer

add vegetation

make the soil wet

credit: Kristine Larson
GNSS Reflections

SNR data on L2 frequency

- 6-m Antenna
- 2.5-m Antenna
- Direct Signal

credit: Kristine Larson
GNSS Reflections

SNR data on L2 frequency

credit: Kristine Larson
GNSS in the Desert …

… thank you!