



6-11 May 2018
ISTANBUL

FIG Congress 2018

United States NSRS 2022: Terrestrial Reference Frames

Daniel R. Roman
Chief Geodesist
Abstract: G13A-07

EMBRACING OUR SMART WORLD WHERE THE CONTINENTS CONNECT:
ENHANCING THE GEOSPATIAL MATURITY OF SOCIETIES

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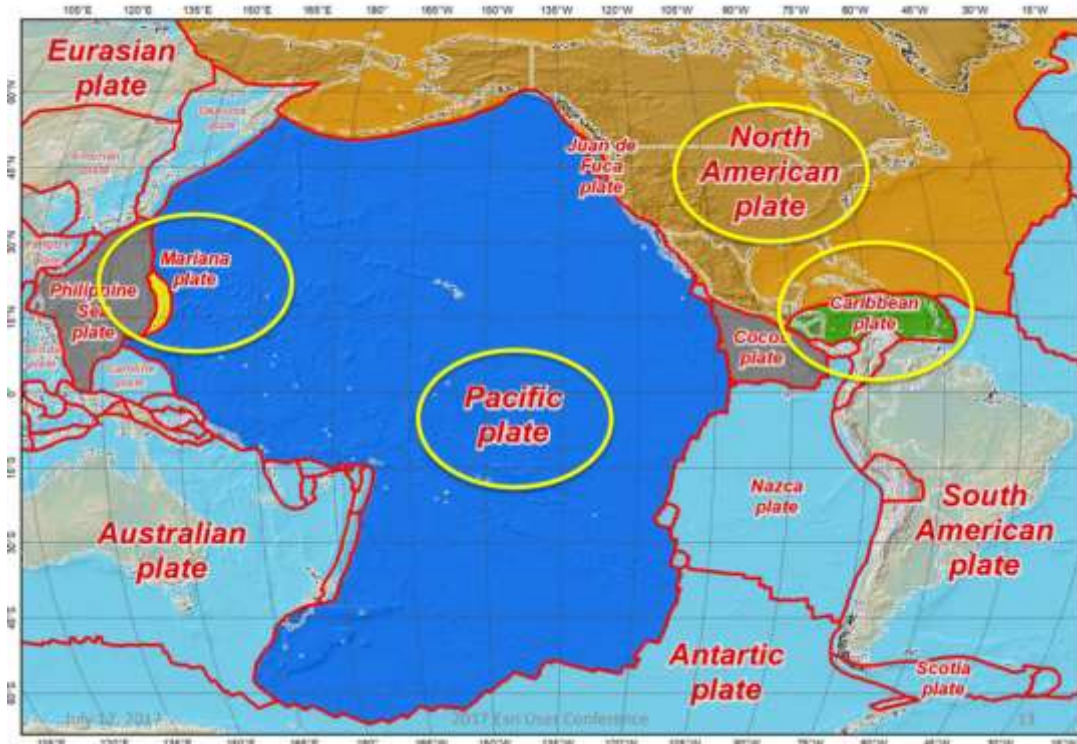
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NSRS in 2022

- Densified ITRF model
- Control stations
 - FCORS/IGS sites \Leftrightarrow ITRF
 - Subset chosen for EPP
- Four Frames after EPP
 - CATRF (w/SIRGAS)
 - MATRF (~ w/GGIM-AP)
 - NATRF (IAG 1.3c)
 - PATRF (w/GGIM-AP)
- Intra-Frame Velocity Models

The four tectonic plates "fixed" for the 2022 terrestrial reference frames

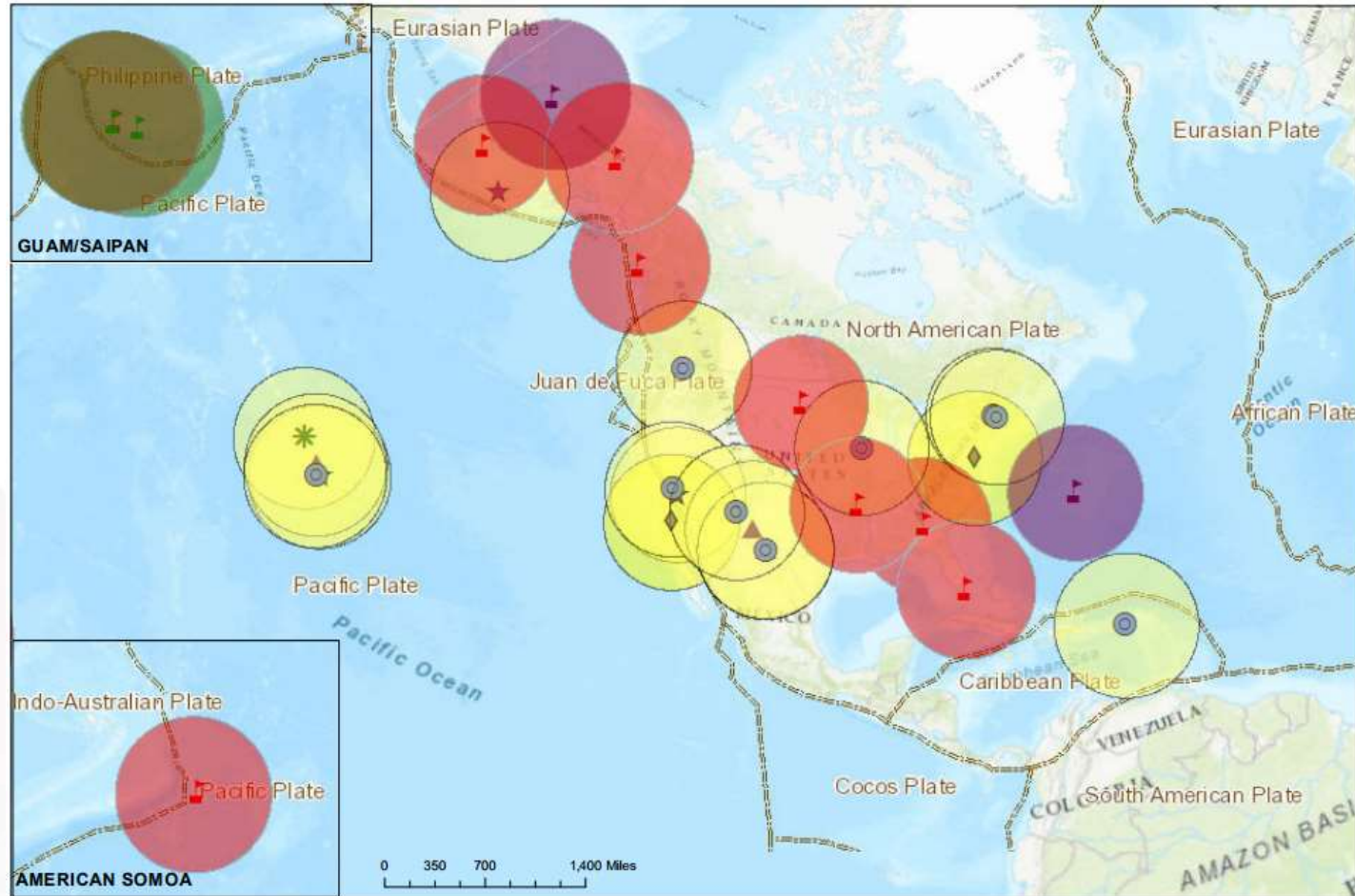


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Collocated + Density + Euler + Additional



- Density Buffer 800km
- Euler Buffer 800km
- Additional Buffer 800km
- SBT Buffer 800km
- Tectonic_Plates

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Canadian Active Control Stations

Circled sites are near uplift domes where GIA horizontal movement is minimized

These would experience GIA motion in the vertical. Implying any horizontal motion must be due to plat rotation



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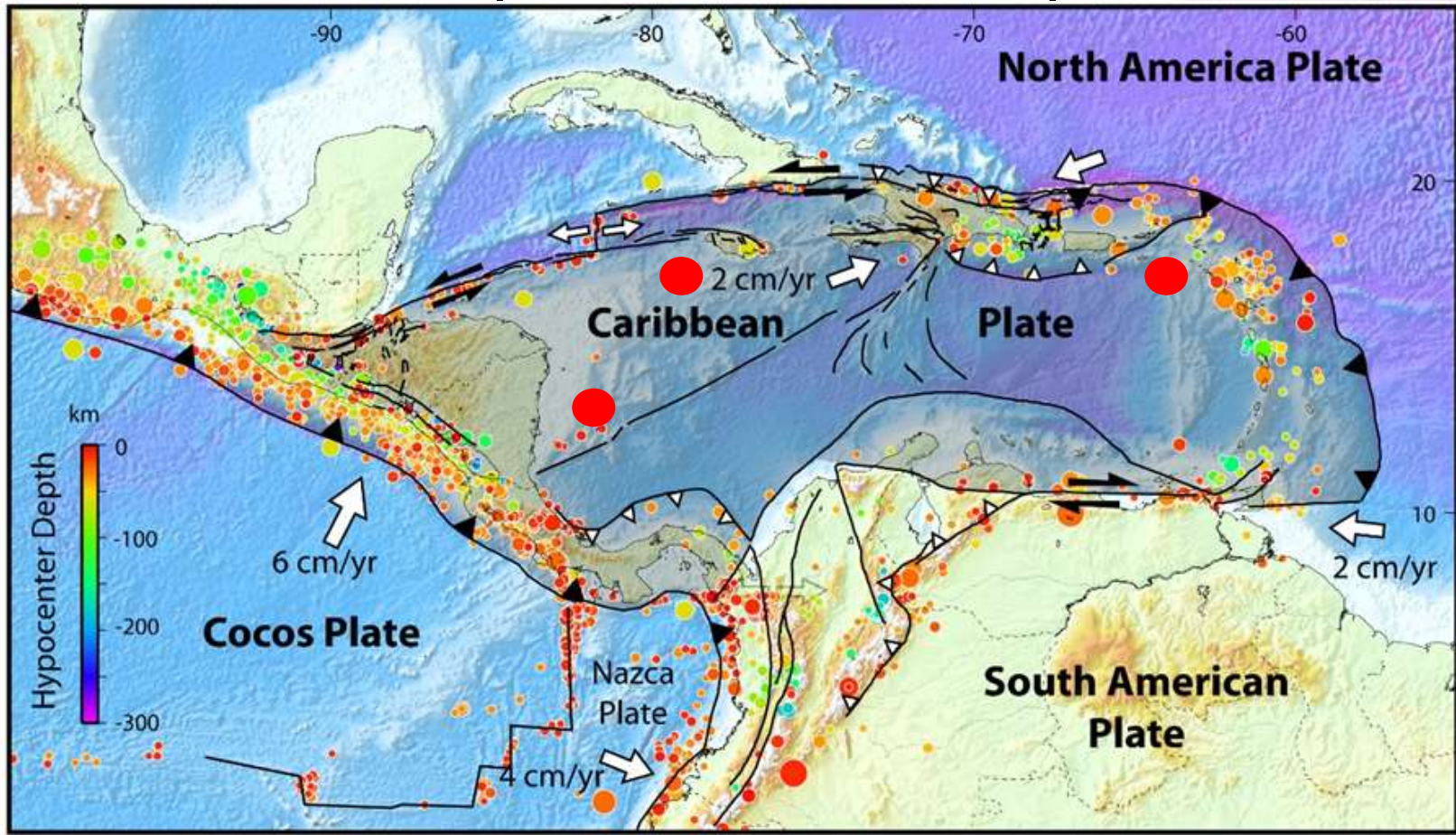


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Structure (DEMETS 2007)



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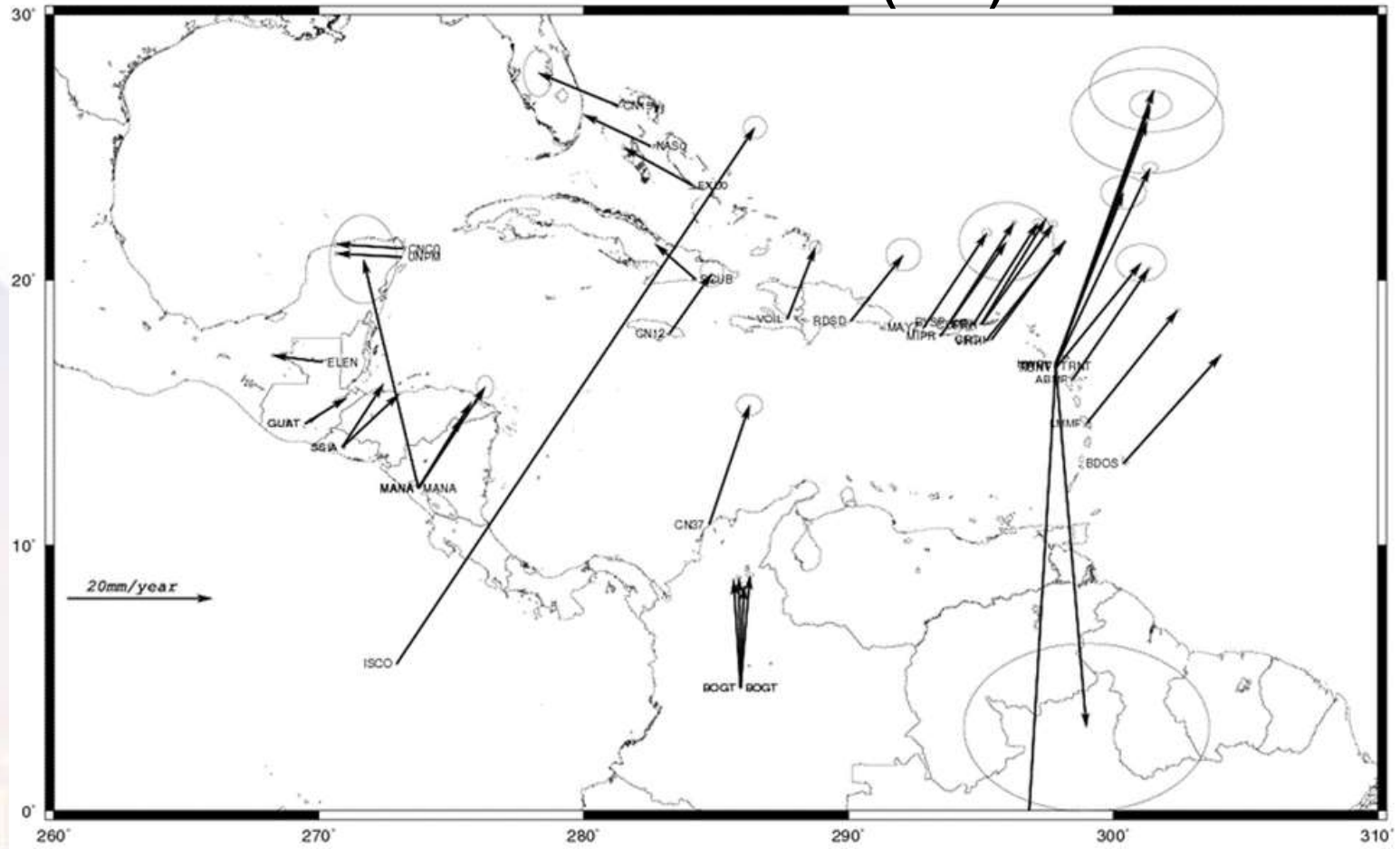
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IGS Velocities in IGS08 (43)



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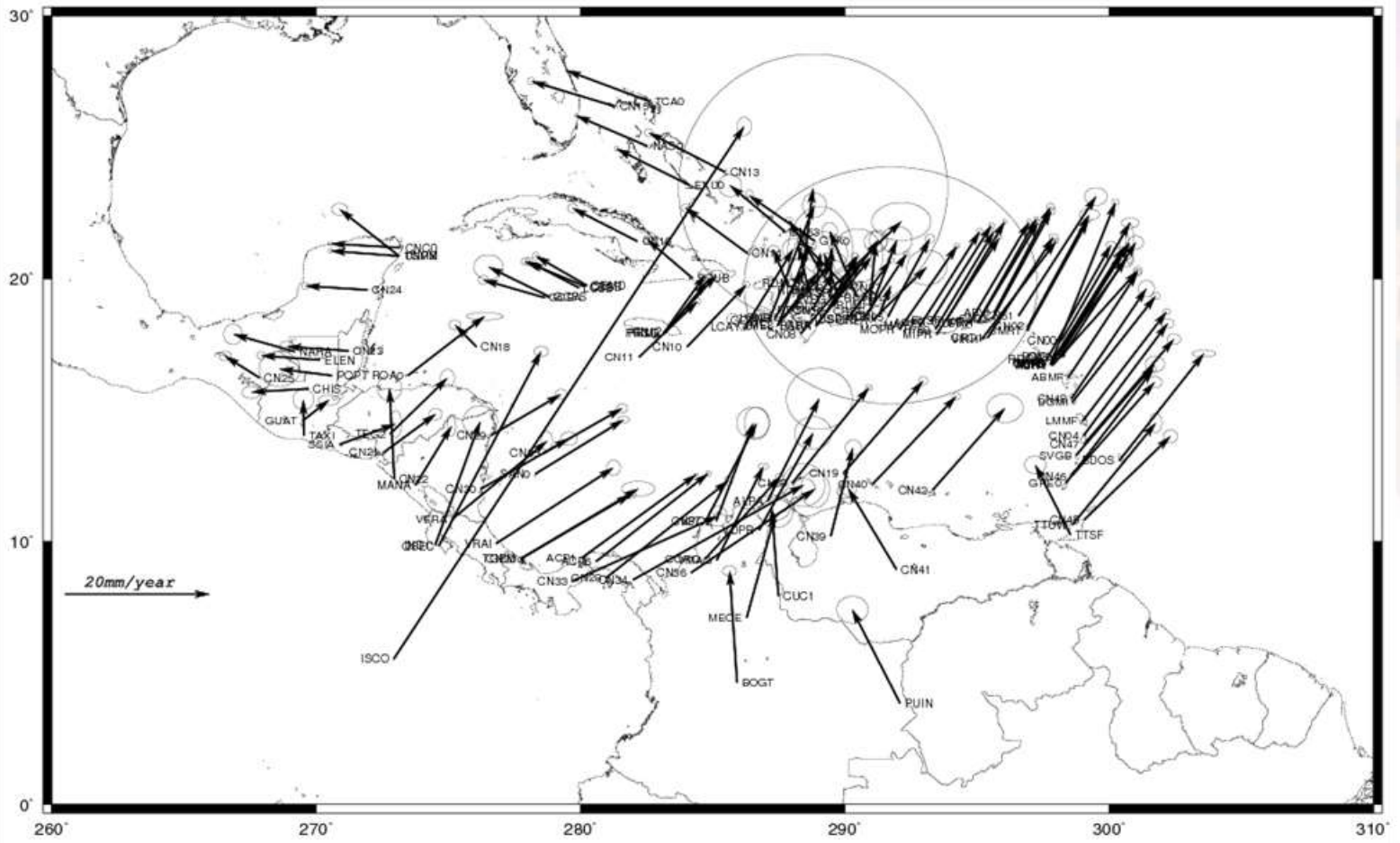
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COCONet Velocities in IGS08 (140)



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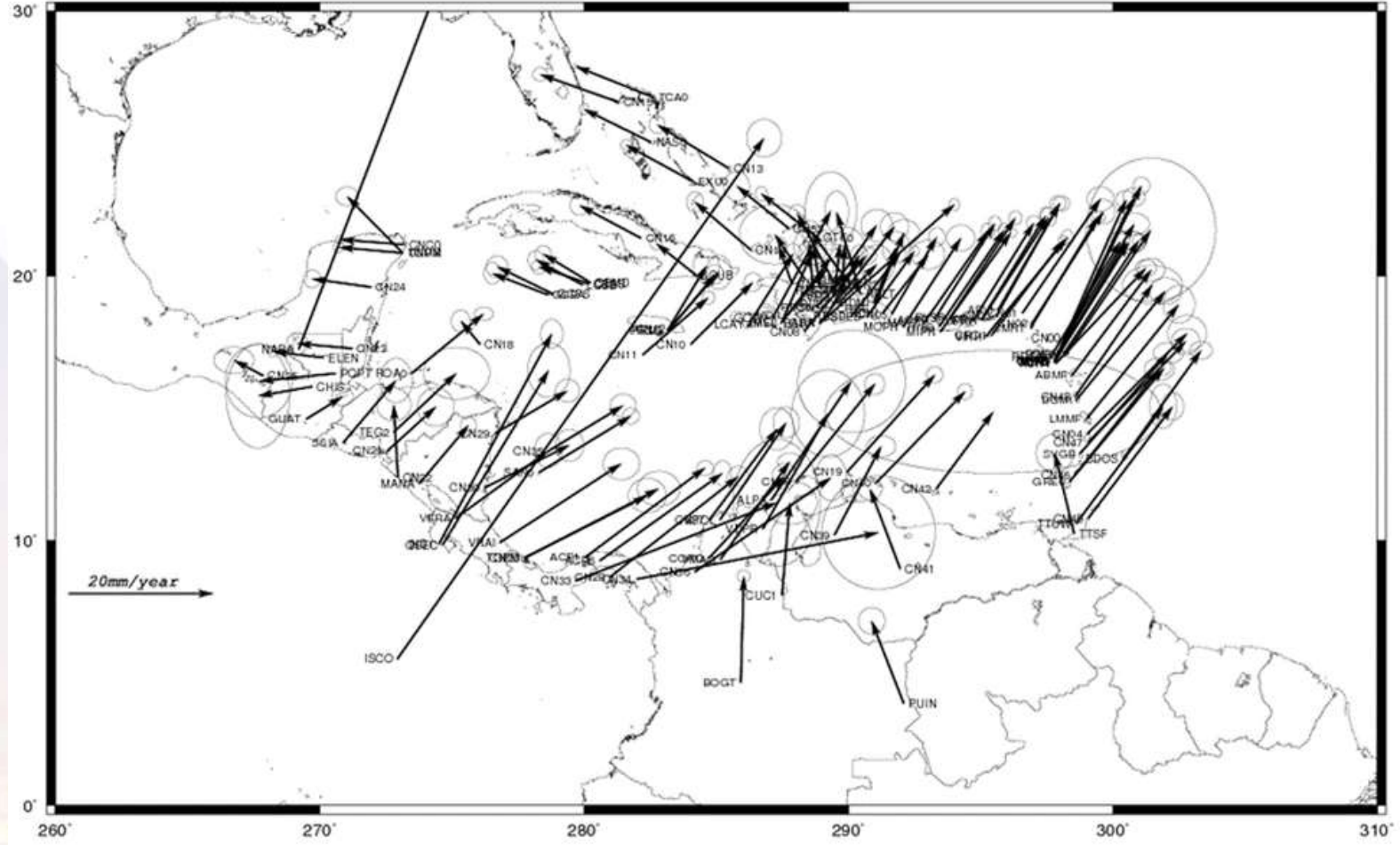
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UNR Caribbean Velocities in IGS08 (136)



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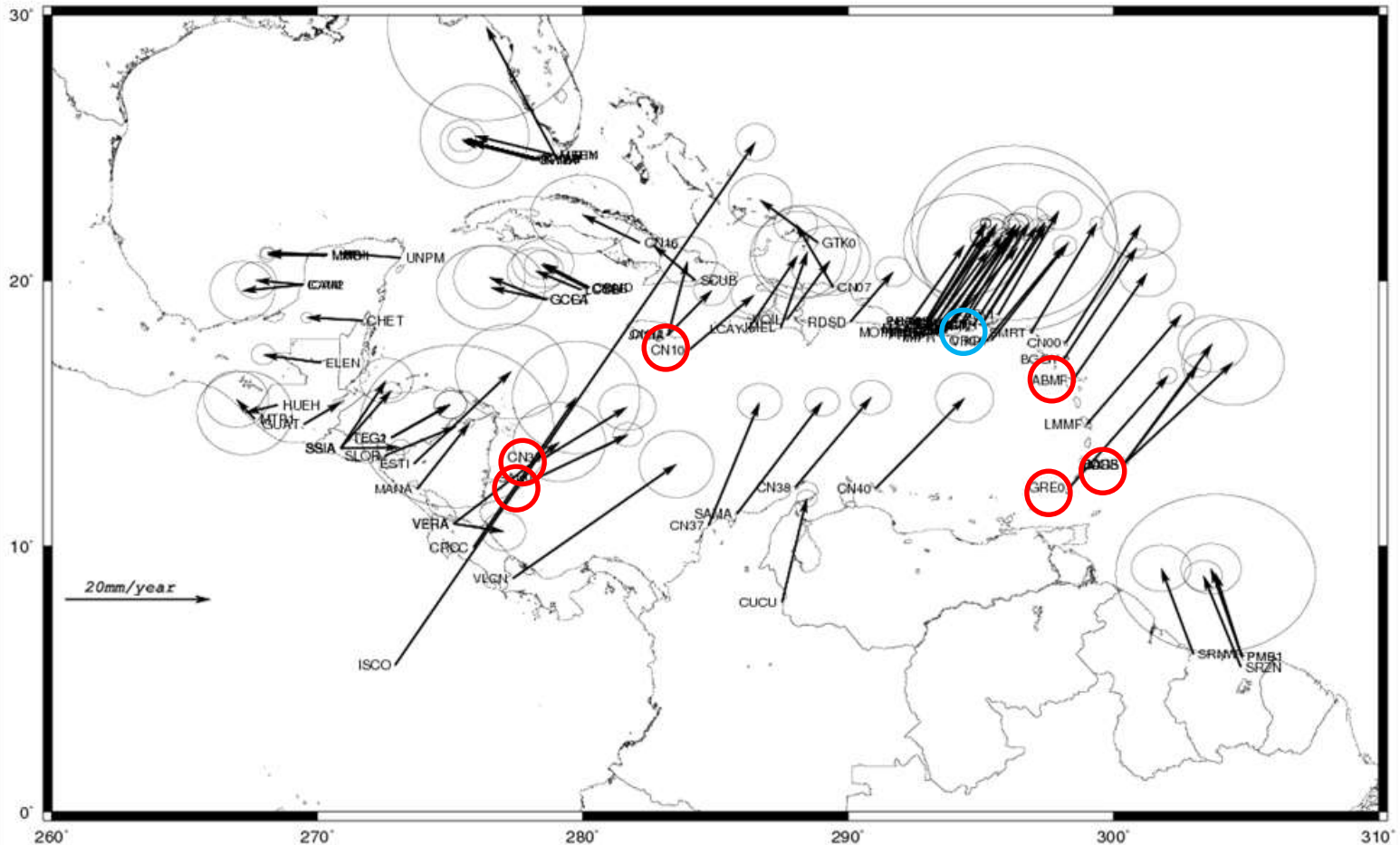


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REPRO2 Velocities in IGS08 (98)



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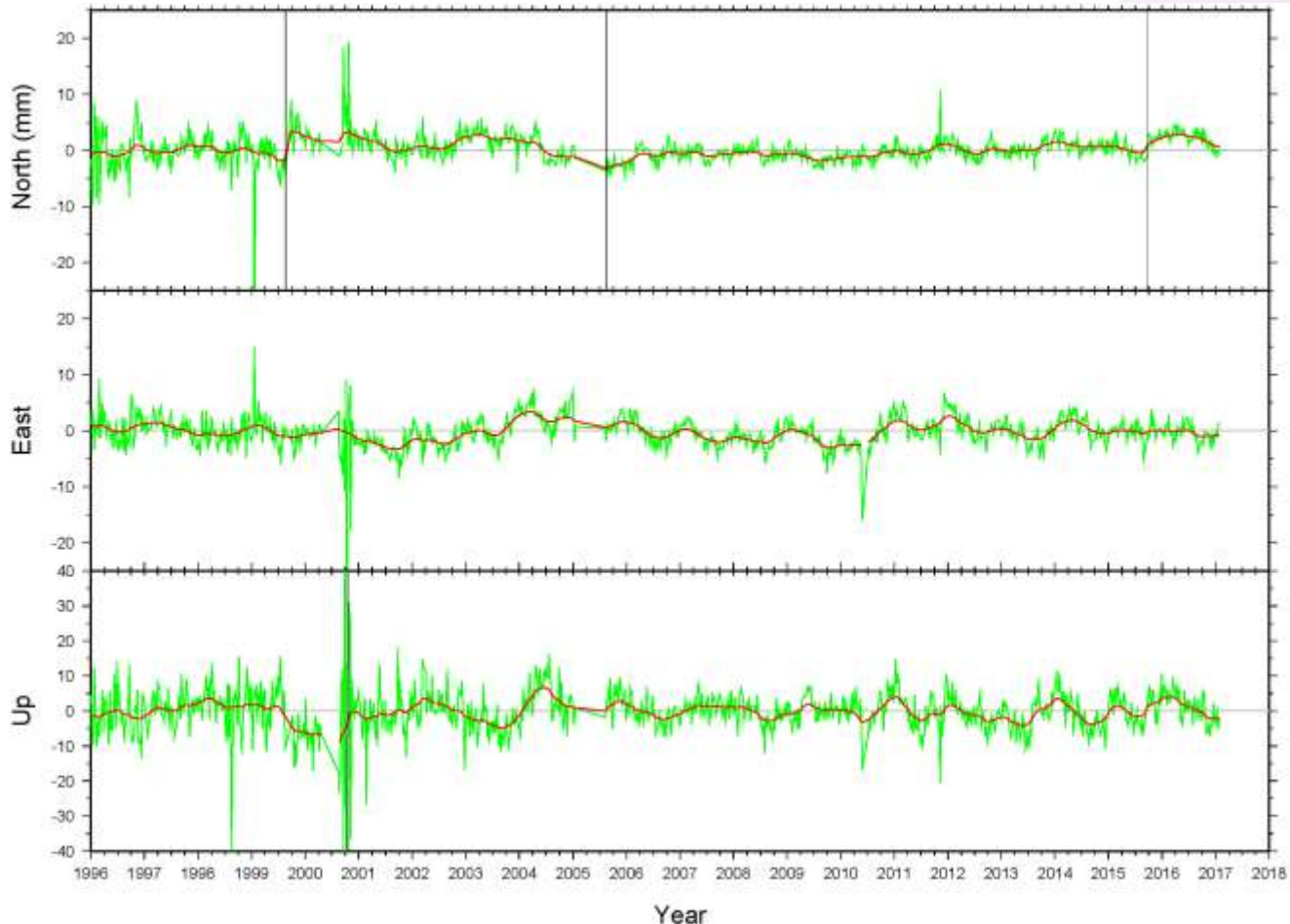
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Residual Velocities on CRO1



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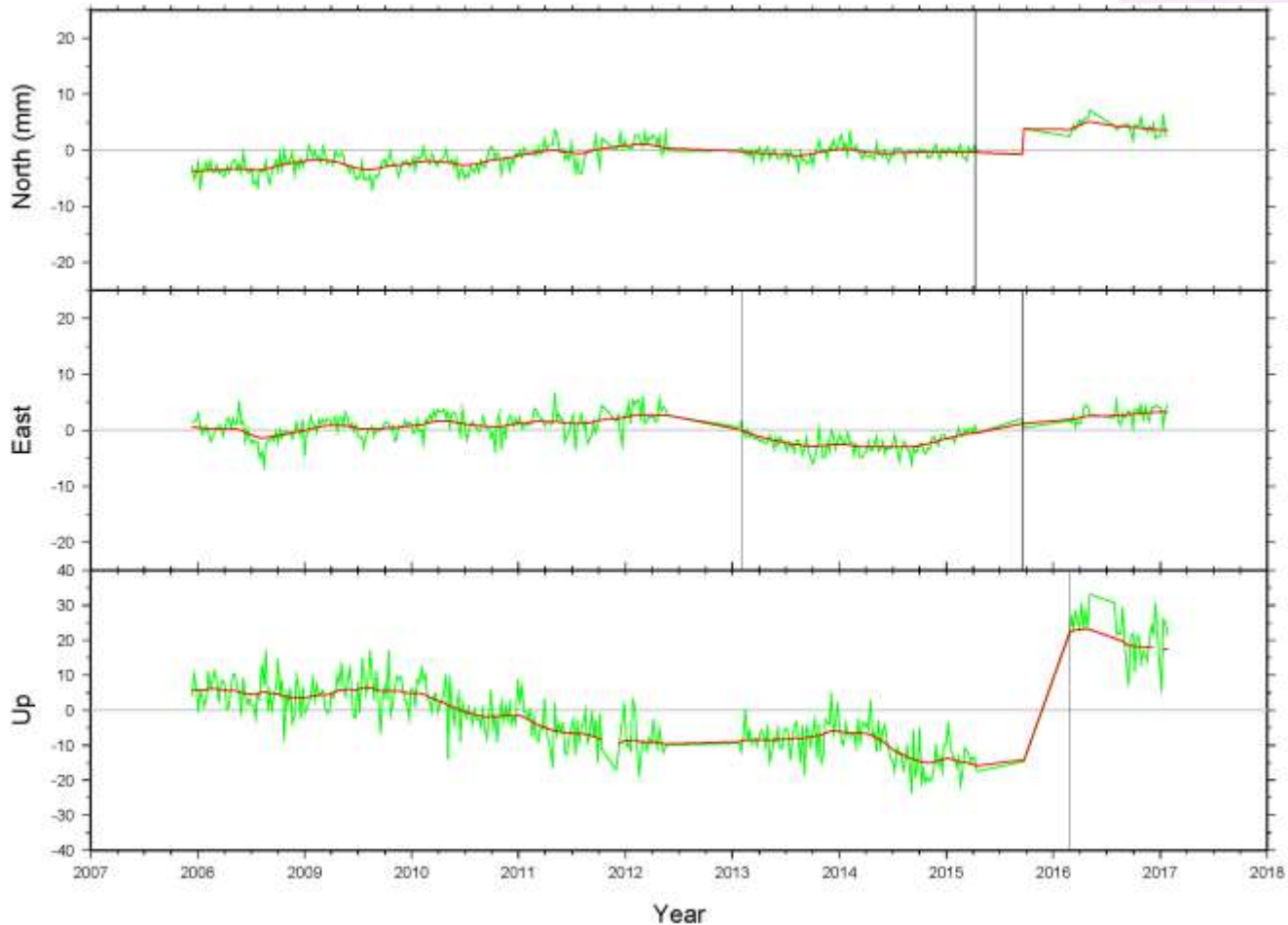
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Residual Velocities on SAN0



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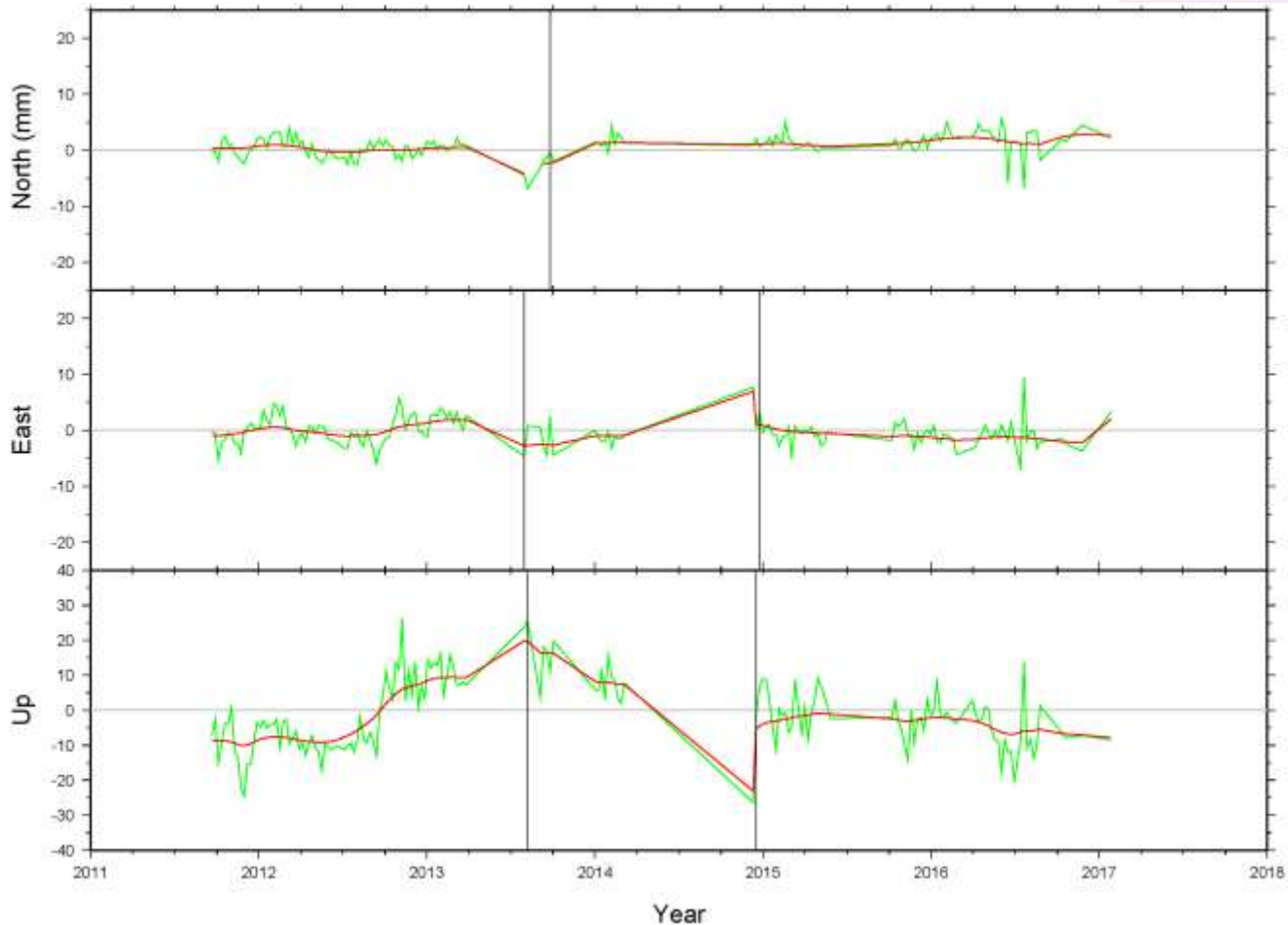
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Residual Velocities on CN10



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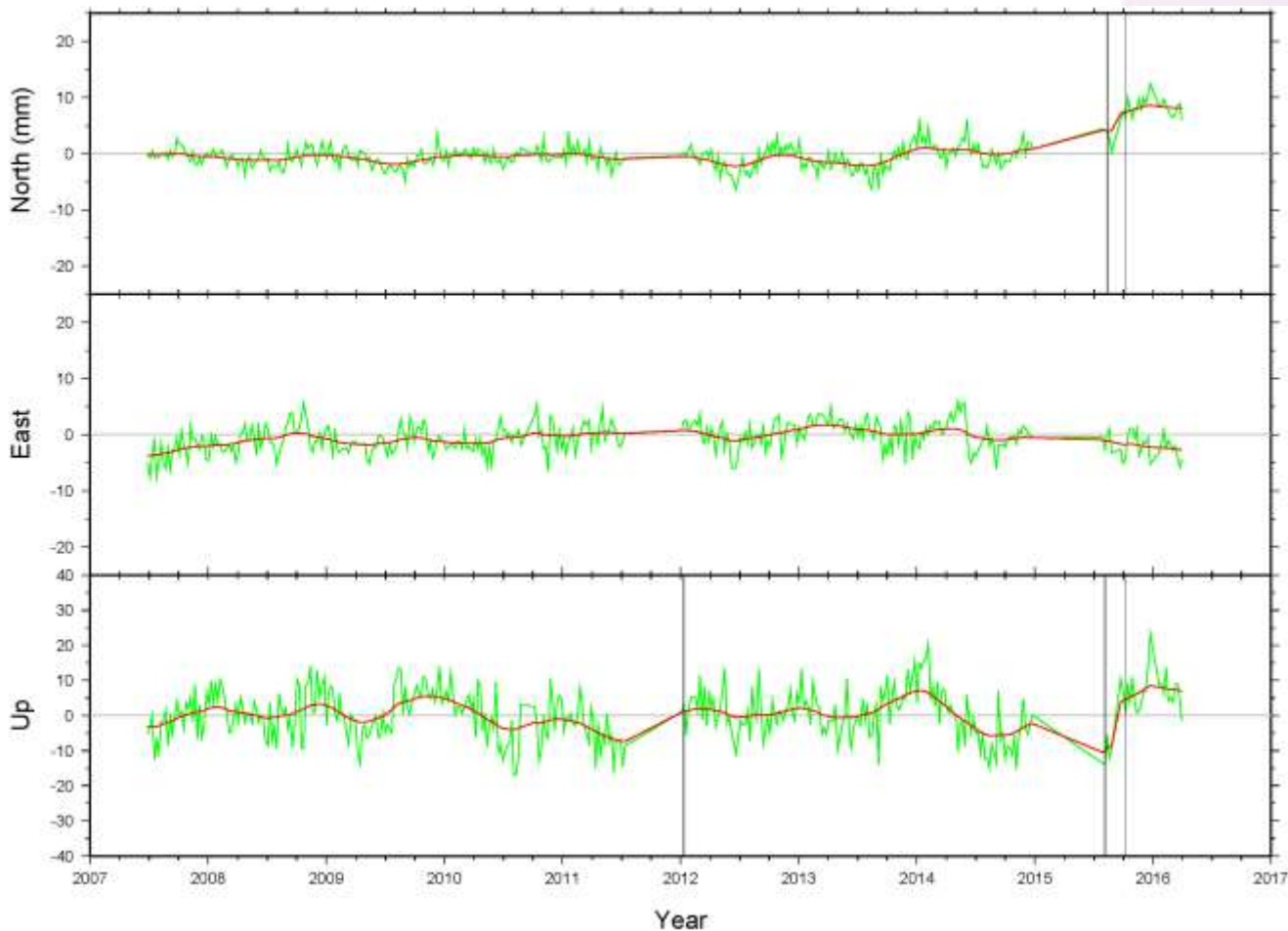
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Residual Velocities on GRE0



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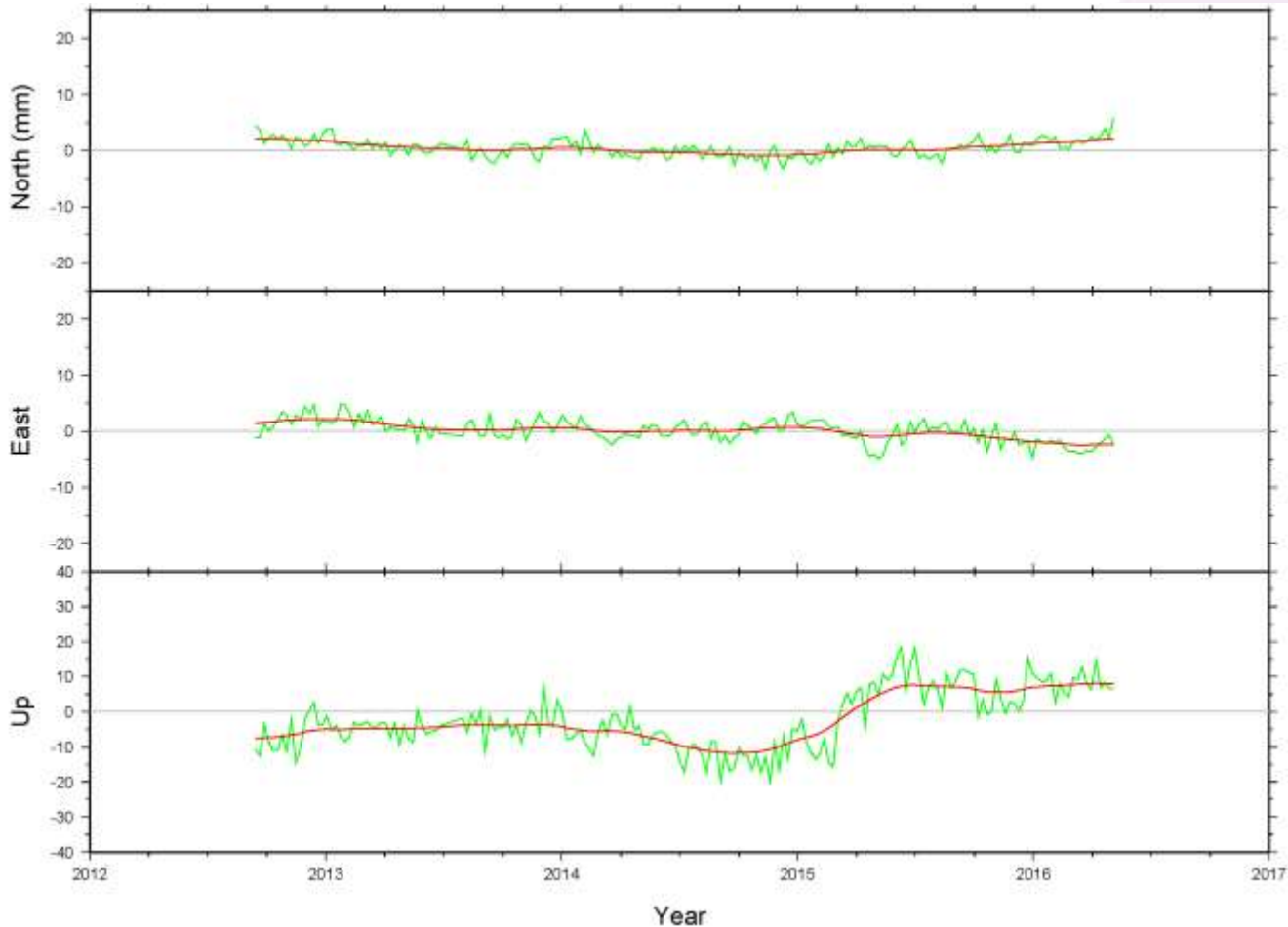
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Residual Velocities on CN35



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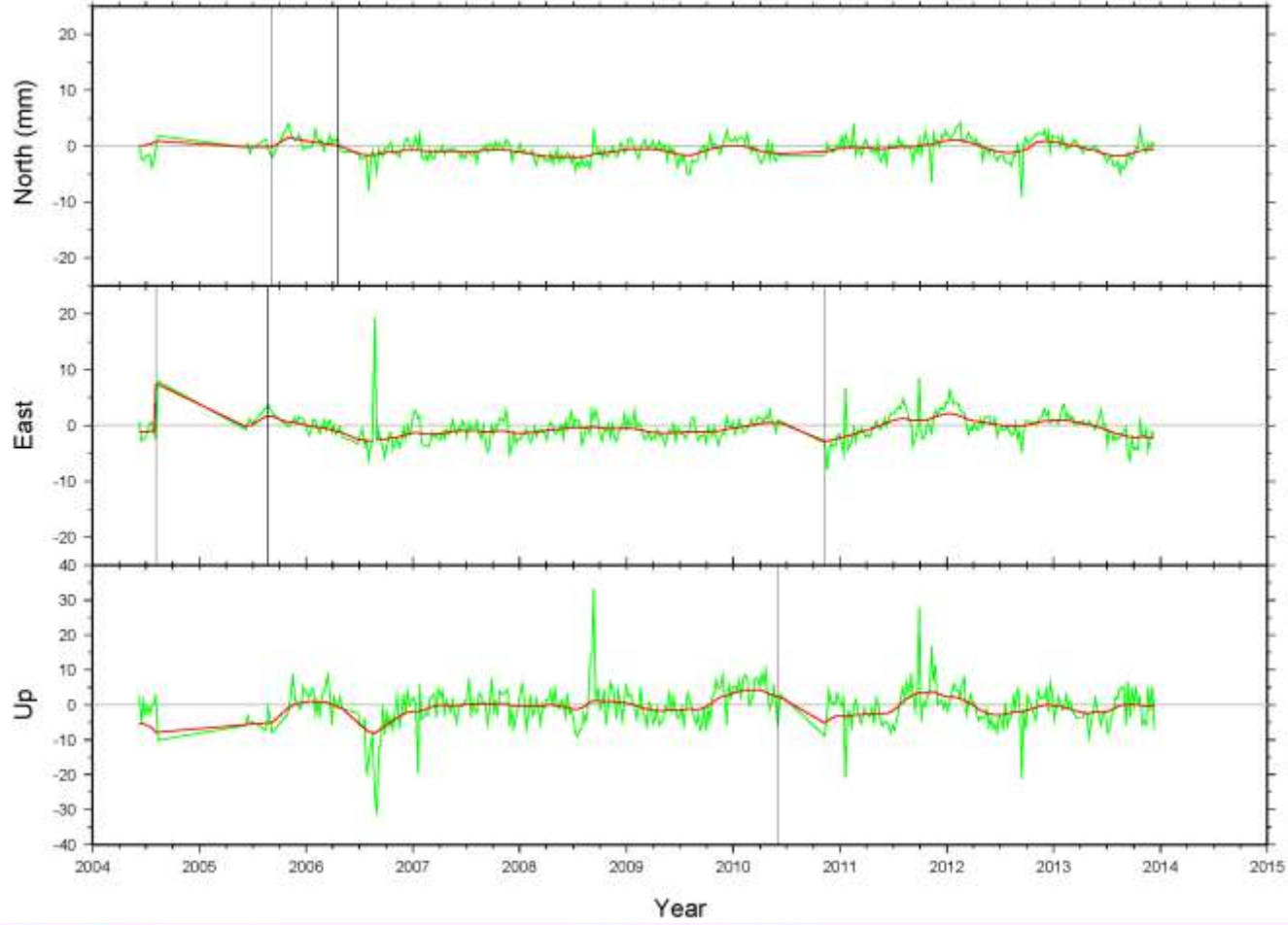
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Residual Velocities on BDOS



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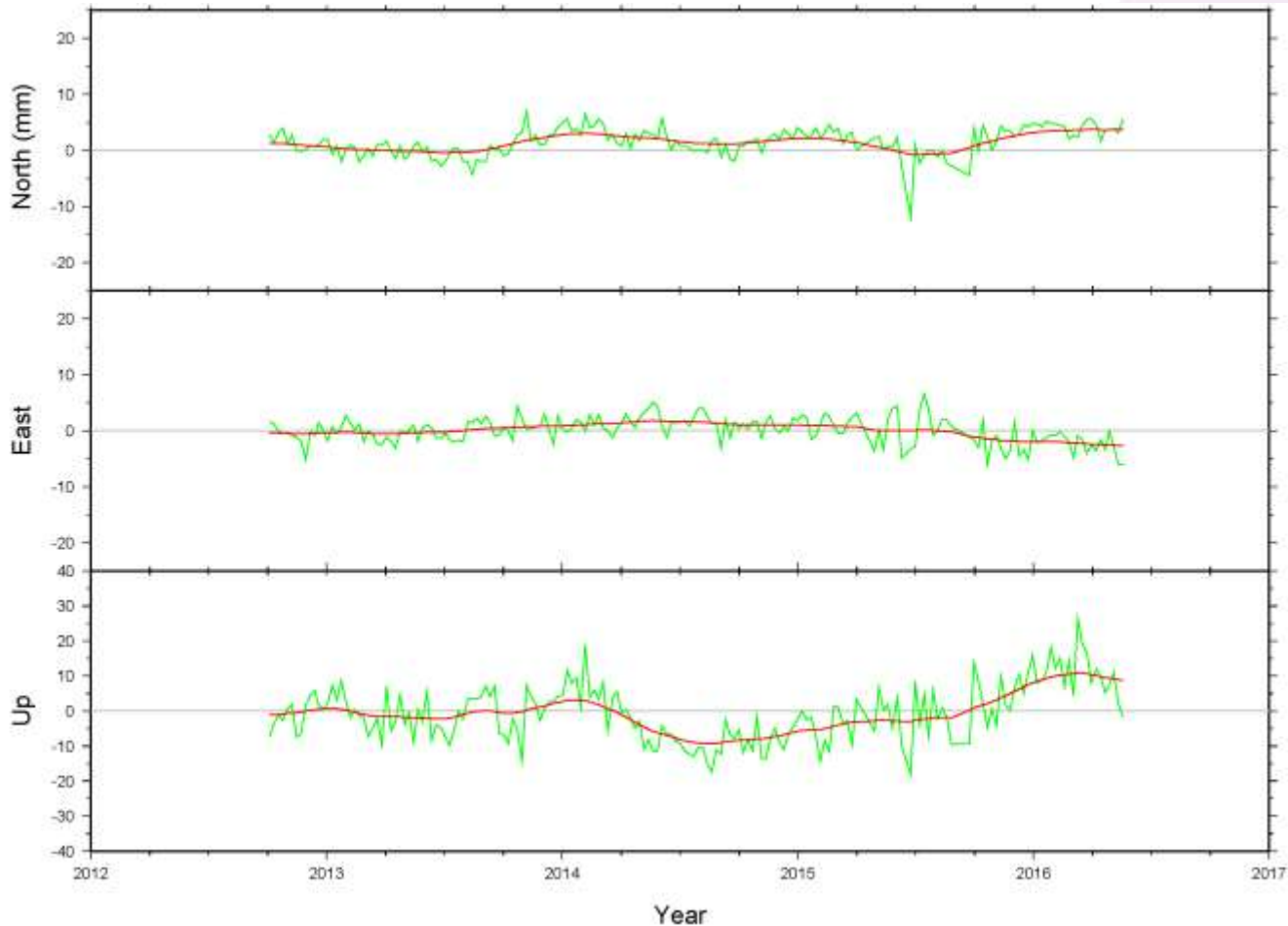
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Residual Velocities on ABMF



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Summary

- Of the four plates, CATRF requires most care
- CRO1 is definite as FCORS
- Two other sites needed for continuity for EPP
- Coordinating with SIRGAS to optimize choice
- Selected sites will be:
 - In a stable area
 - Have a sufficiently long time series
 - Supported by NGS to maintain continuity