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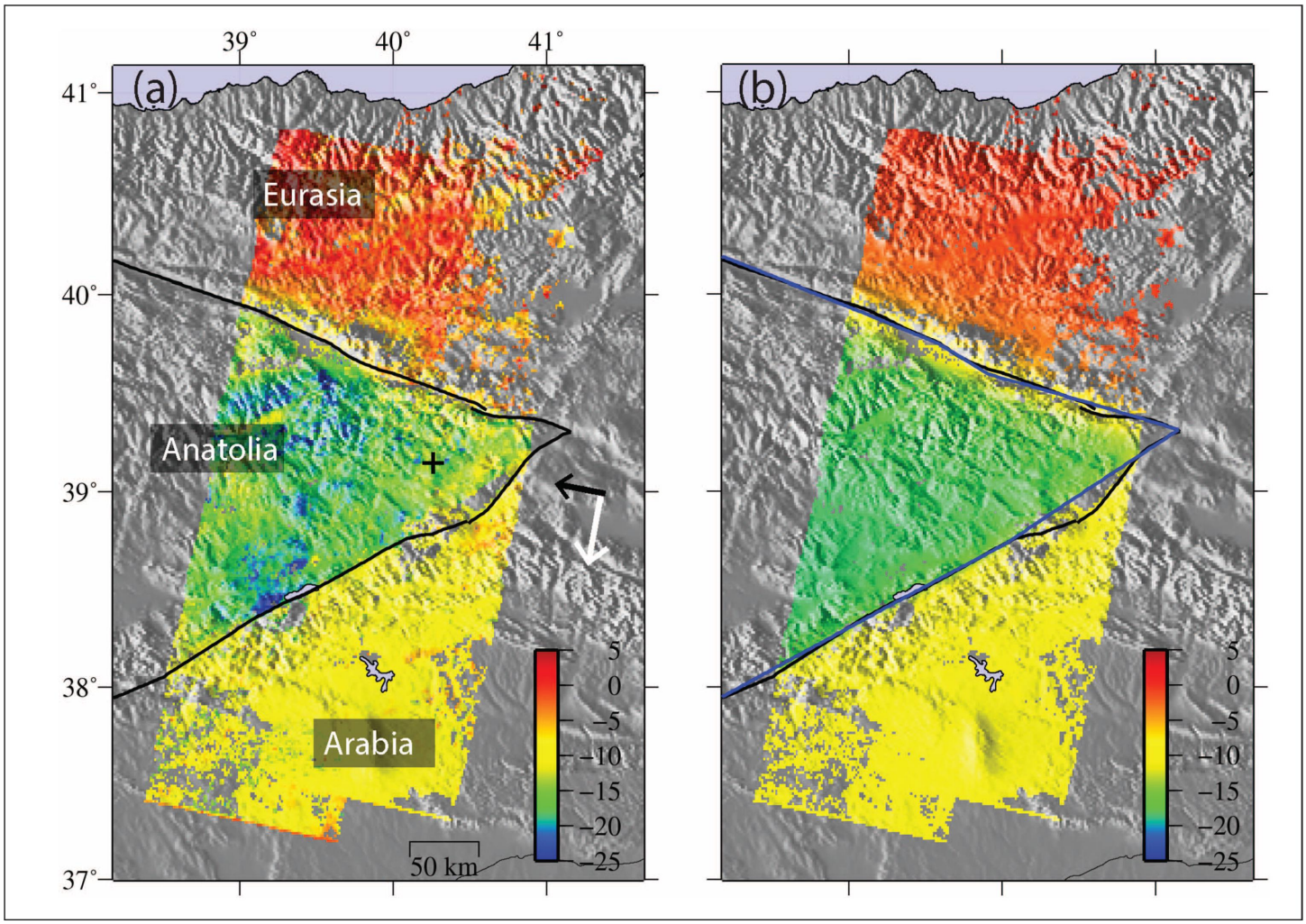

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Horizontal ground motion (projected into the black arrow direction) of the Anatolian, Arabian, and Eurasian plates, analyzed by spatial Allan variance

The cover image shows radar interferometry (InSAR) measurements of the surface displacement rate of eastern Anatolia. Left panel shows observations made on the descending orbit of the satellite and the right panel shows measurement on an ascending orbit (white arrows show the satellite flight direction). The coverage area encompasses three tectonic plates: Eurasia, Anatolia, and Arabia. On both figures, Eurasia held fixed and colors show the relative horizontal motion rate of Anatolia and Arabia (projected into the horizontal component of the satellite line of sight, black arrows). Many radar images acquired over time are needed in order to reduce the noise component and thus give such nice velocity maps of Earth's surface.

Using Allan variance, this paper investigates the noise content of InSAR measurements. For that purpose, we develop a new algorithm to define a spatial (2-D) Allan Variance. We then apply the algorithm to characterize both the geophysical signal shown on the picture and the different noise components.

Images are courtesy of Olivier Cavalié and François Vernotte. O. Cavalié is with the Université de Nice Sophia Antipolis, CNRS, Observatoire de la Côte d'Azur, Géoazur, 06560 Valbonne, France. F. Vernotte is with the UTINAM, Observatory THETA of Franche-Comté, University of Franche-Comté/CNRS, 25010 Besançon Cedex, France.

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