Long-Term Velocity Field for Mexico country

Nathalie Cotte[*1], Vladimir Kostoglodov[2], Andrea Walpersdorf , Ekaterina Kazachkina ,
and Aline Deprez

[1]Institut des Sciences de la Terre – Université Joseph Fourier - Grenoble 1, Institut français des sciences
et technologies des transports, de l'aménagement et des réseaux, Institut national des sciences de
lÚnivers, Institut de recherche pour le développement [IRD] : UR219, PRES Université de Grenoble,
Université Savoie Mont Blanc, Centre National de la Recherche Scientifique : UMR5275, Université
Grenoble Alpes, Institut national des sciences de lÚnivers, Institut national des sciences de lÚnivers –
BP 53 - 38041 Grenoble cedex 9, France
[2]Instituto de Geofisica – UNAM – Mexico DF, Mexico

Abstract

Mexico is known to host the largest Slow Slip Events ever observed on a subduction zone
: from Guerrero to Oaxaca areas, these kinds of transients are regularly detected using GPS
observations, with deformations at the surface up to 6cm in the NS direction.
Many mexican areas are now well studied thanks to cGPS installed since several years, the
oldest has been installed in 1997. Some permanent networks installed and maintained by
Institutions (IG-UNAM, SSN, INEGI) or by projects (TlalocNet) permit to cover more or
less the country, being completed recently by the very new REGNOM network (Baja Cal-
ifornia and North Mexico). The coverage is not so dense and presents some disparities in
space distribution, but it allows now to perform a complete study of the country.

Although the existence of transients, the observation time span is large enough to perform
the study of the long-term velocity field. Indeed, the transients observed in Guerrero and
Oaxaca do not release all the constrains accumulated on the subduction interface, and the
final budget over decades shows that some long-term deformation still remains. Furthermore,
for the sites outside these areas, no transients have been detected, allowing us working on
shorter time series for the long-term velocity field determination.
For this work, we used the tools and strategies developed at Université Grenoble Alpes –
CNRS within the frame of the EPOS project (see presentation of Déprez et al.). Indeed, for
integrating all the cGPS in Mexico and some 70-80 IGS sites, an analysis using sub-network
has been implemented on the CIMENT computing facilities at the University.

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[*]Speaker