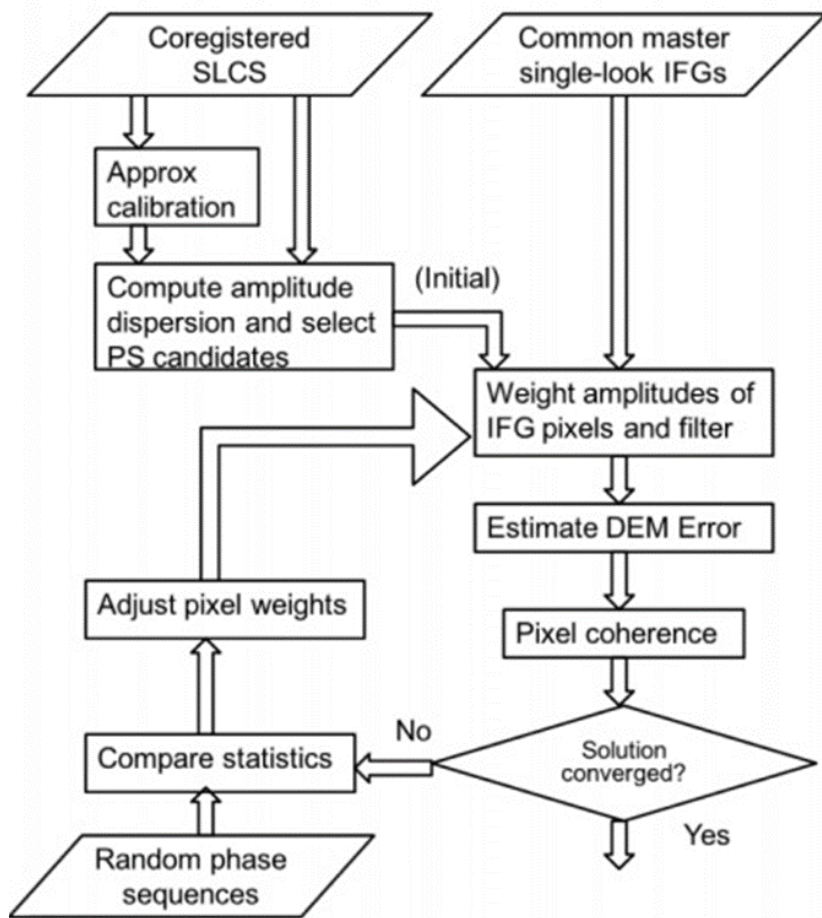**Romanian Space Agency (ROSA), Romania**

DISASTERS SOLUTION PRECURSOR: LAND DEFORMATION
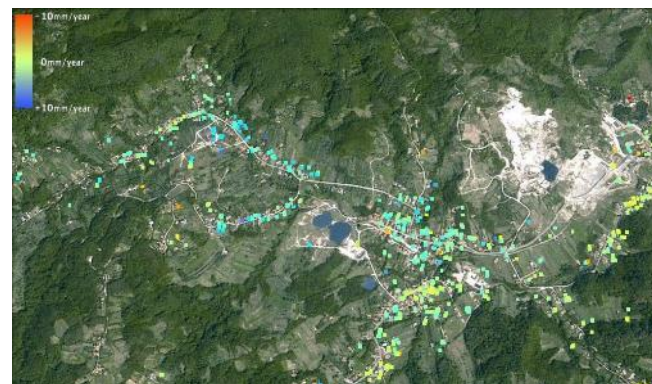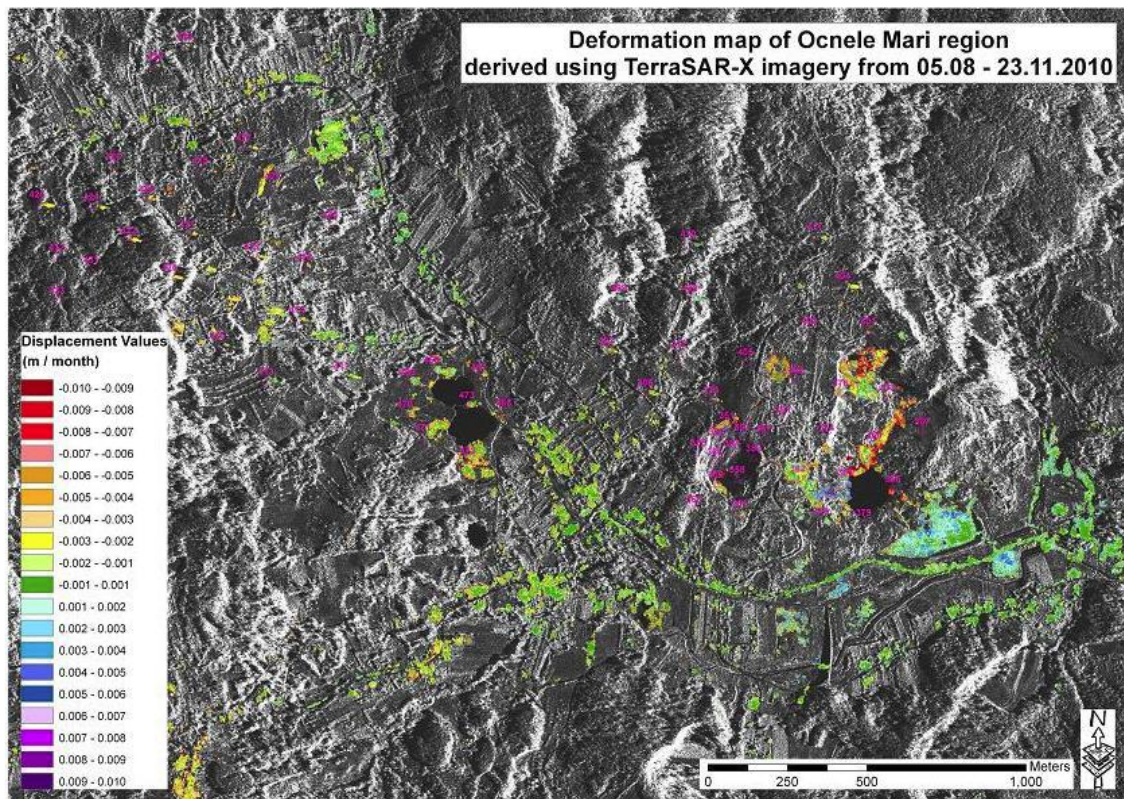
Land deformation solution

- Geotechnical and structural engineering analysis

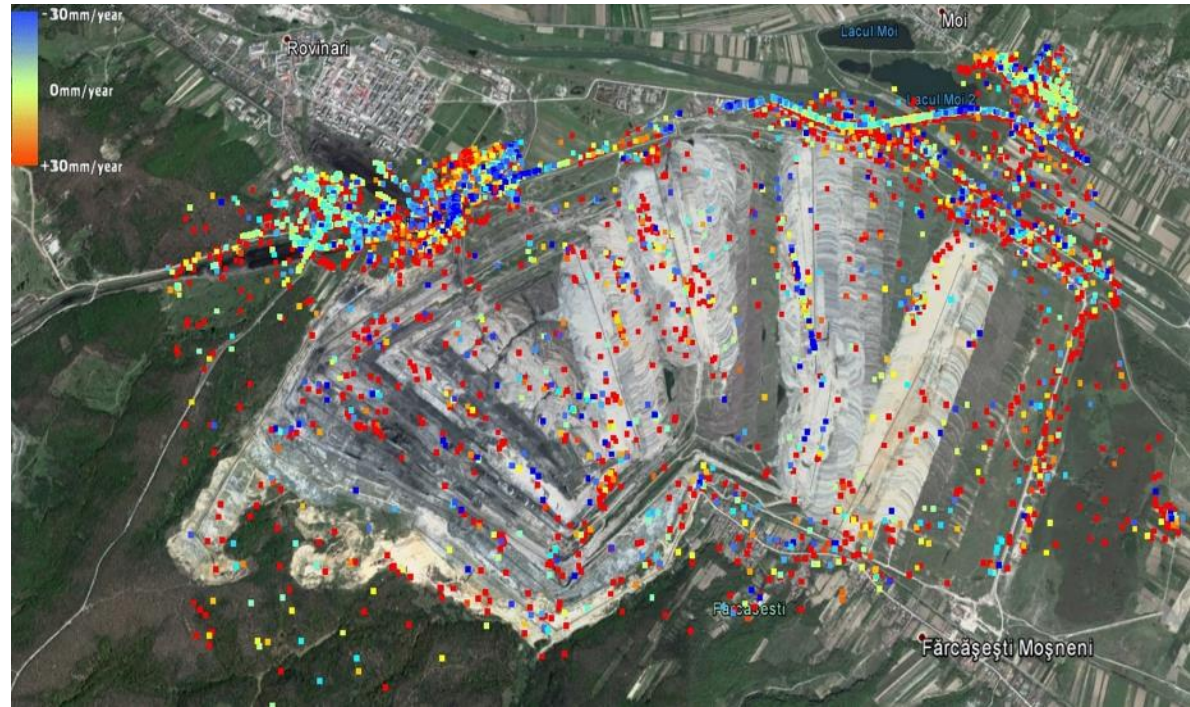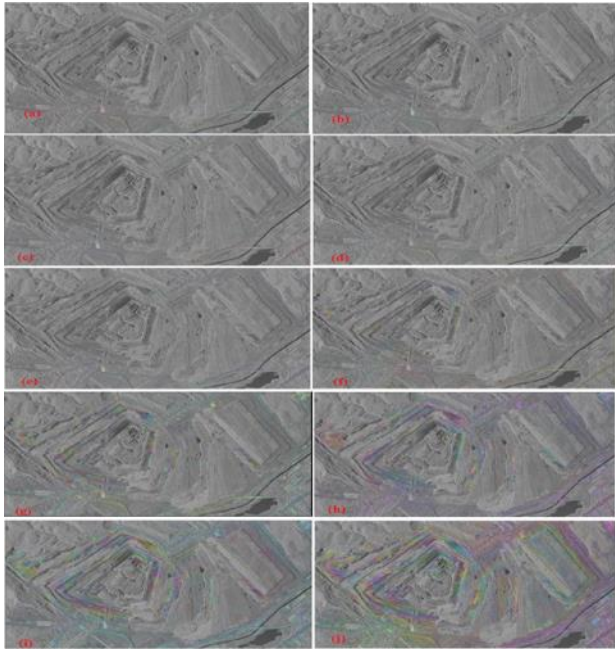- Detect and monitor the temporal evolution of intra-building displacements in urban areas

Land deformation
Ocnele Mari mining area (2010-2011)

Environmental impact assessment of Rosia Jiu opencast

Spatial distribution of the PS points: Red points indicate uplift (excavated) areas and blue point shown downlift (in the main pit) or subsidence (tailings areas). ©Google Earth, 2016

Differential interferograms obtained in the PSInSAR analysis. Excavation activities and tailing dumps induce SAR signal decorrelation during summer- autumn TSX acquisition (a to f cases). Deformation phenomena evolution is highlighted in the cold season when higher coherence is observed.

PS-InSAR displacement map
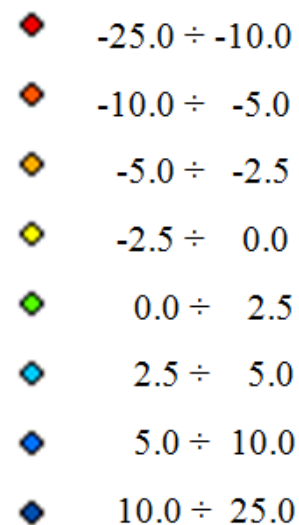# Historic Centre of Sighisoara

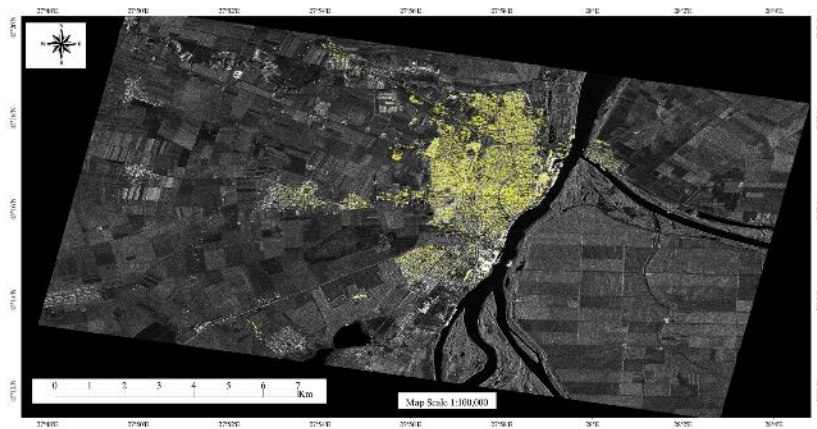

Displacement velocity (mm/year)
6 March – 12 October 2014

-25.0 ÷ -10.0
-10.0 ÷ -5.0
-5.0 ÷ -2.5
-2.5 ÷ 0.0
0.0 ÷ 2.5
2.5 ÷ 5.0
5.0 ÷ 10.0
10.0 ÷ 25.0

14,673 persistent scatterers (PSs)   mean -0.73 mm/year

DEFORMATION
Braila City

Mean value of the mean displacement is about 0.03 mm/year (standard deviation of 7.85 mm/year) while mean precision velocity evens a value of 1.24 mm/year (standard deviation of 0.23 mm/year).

PS Big Island of Braila

PS Braila Agricultural Area

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Coherence optimization for physical scattering centers estimations. An improvement of the interferometric phase was obtained.

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