REDUCTION OF ECONOMIC-FINANCIAL EXPOSURE OF THE STATE AND PROTECTION OF HUMAN LIVES

Model for the prevention and mitigation
of damages to people and properties through an insurance coverage

Extending Earthquake Hazard Studies from Stochastic to Deterministic Realities

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OhioSeis
Ohio's earthquake monitoring network

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CGIAM Proposal

- **Earthquake hazard analyses → stochastic to deterministic**
- **Stochastic methods → for earthquake zones with high seismic recurrence rates – eg., at spreading, colliding, and transform fault plate boundaries**
- **Deterministic methods → for earthquake zones with low or unreliable seismic recurrence rates – eg., at intraplate regions of induced and reactivated basement tectonism**
- **Deterministic seismic hazards modeling is greatly aided by complementary geophysical marine, terrestrial, airborne, and satellite data.**

CGIAM Proposal

- **Complementary geophysical data that will be considered by the proposed national earthquake hazards assessment project➔**

  - gravity (marine, terrestrial, airborne, satellite)

  - magnetics (marine, terrestrial, airborne, satellite)

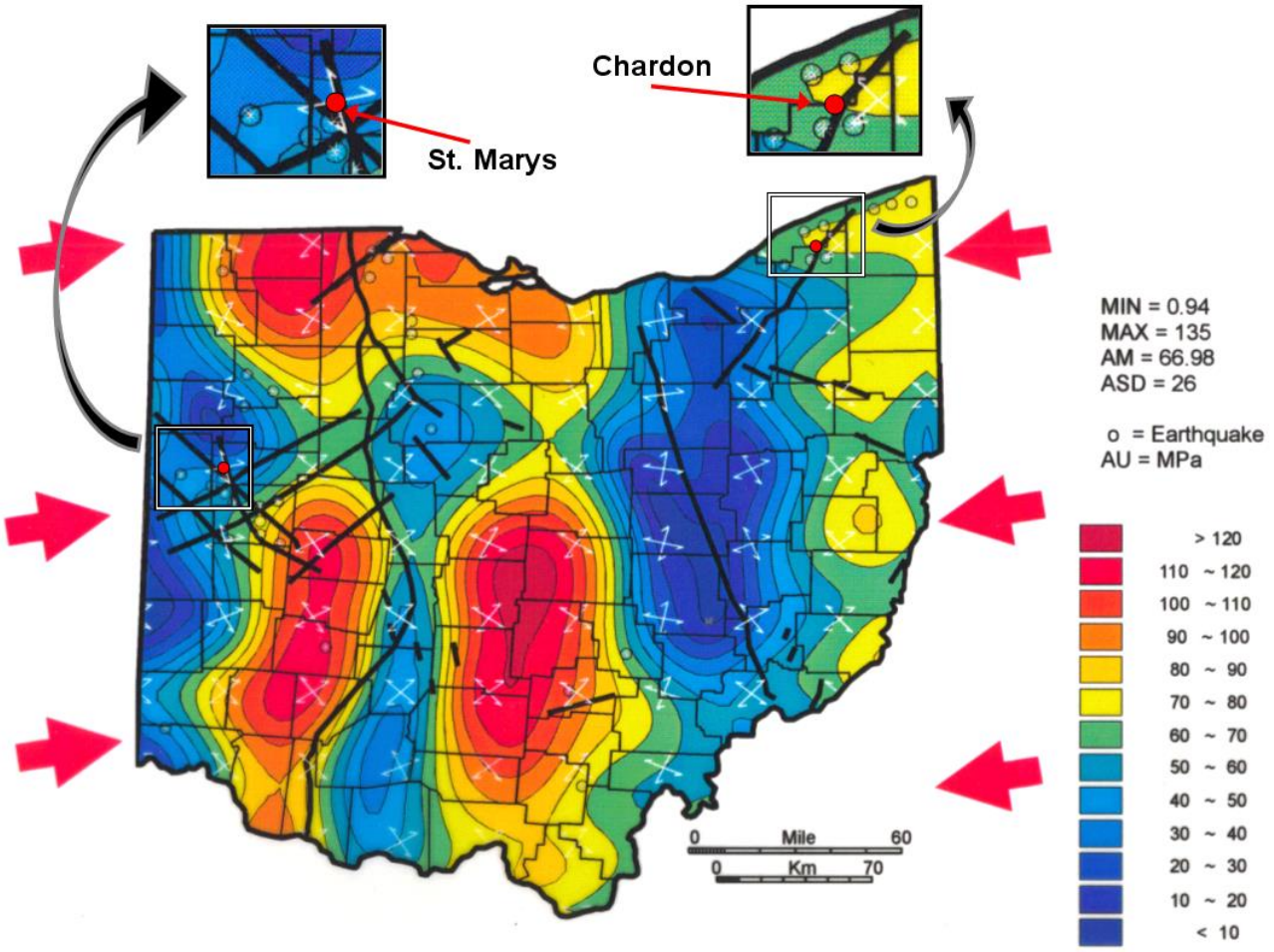
  - LiDAR (airborne)

  - GPS terrestrial velocities and ionospheric TEC

  - borehole stress

  - InSAR (airborne, satellite), etc.

Constraining Earthquake Stress



Horizontal shear stress in MPa (color) and local crustal motions (white half arrows) inferred from the crustal thickness variations and a superposed regional stress of 150 MPa directed ~ W10°S due to Mid-Atlantic ridge push (red arrows).

CGIAM Proposal

- Recognizes that Italy can no longer sustain current levels of earthquake damage
- Takes advantage of national capabilities (eg., INGV and other agencies) and expands them
- to make Italy an international leader in short-term, local earthquake hazard assessment
- Expands geophysical and engineering data-bases for greatly improving earthquake hazard studies of Italy
- Is a win-win opportunity for earthquake science and engineering studies