

ATTENUATION RELATIONSHIPS

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Portland, Oregon
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THE FOLLOWING TOPICS WILL BE DISCUSSED

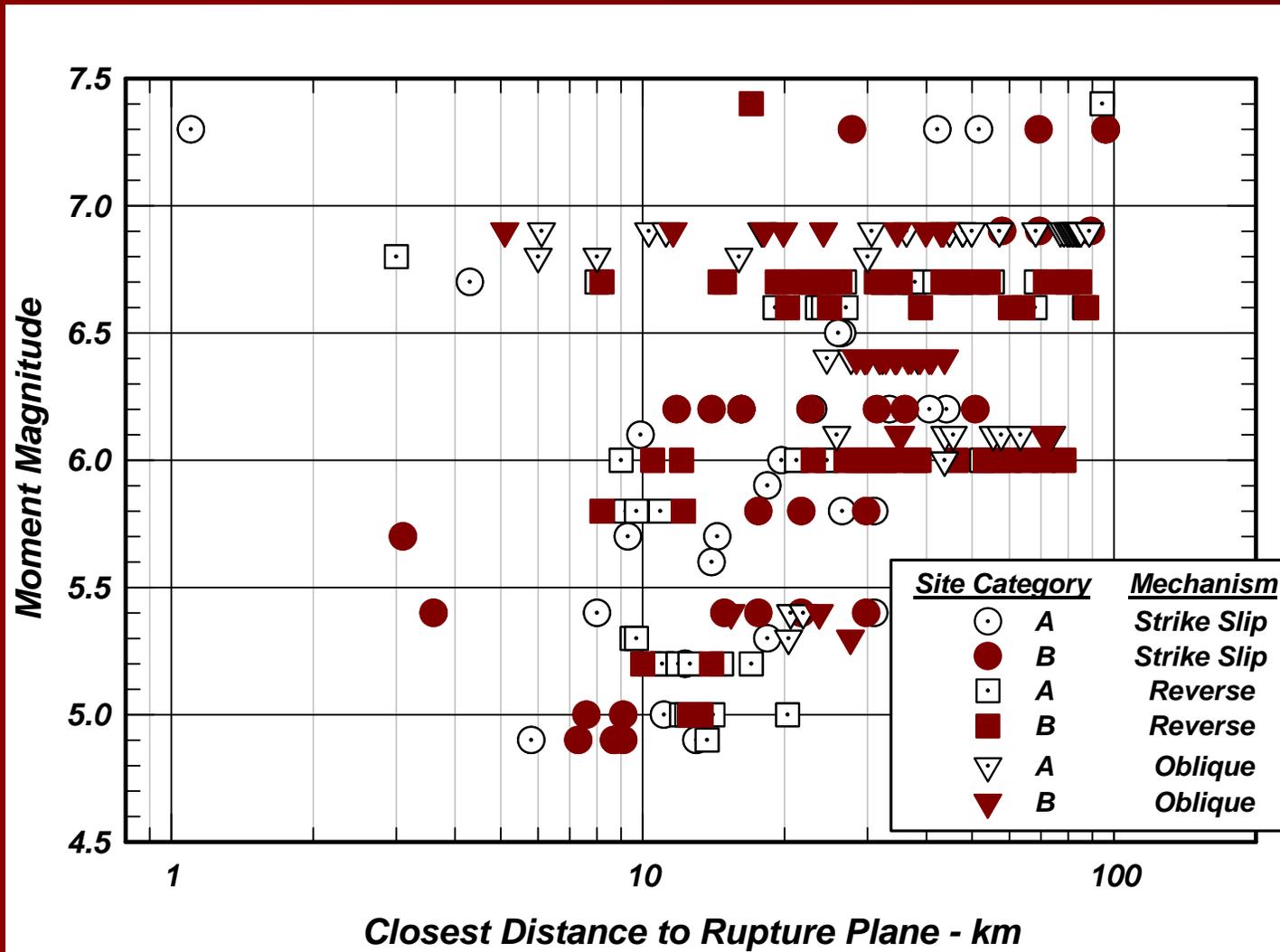
- 1. Earthquake ground motion parameters***
- 2. Currently available attenuation relationships***
- 3. New generation attenuation relationships (NGA)***

1. EARTHQUAKE GROUND MOTION PARAMETERS

- ***Peak acceleration, velocity & displacement
(a, v, d)***
- ***Response spectral ordinates
[functions of T (or f) & β]***
- ***Fourier amplitudes
[functions of f (or T)]***
- ***Arias Intensity***
- ***Husid Plot***

2. CURRENTLY AVAILABLE ATTENUATION RELATIONSHIPS

A number of the most commonly used attenuation relationships in Western North America (WNA), Eastern North America (ENA), & for Subduction Sources are summarized in a document under review for FERC.



Distribution of earthquake ground motion data used to derive currently available attenuation relationships at rock-like sites for WNA

3. NEW GENERATION ATTENUATION RELATIONSHIPS **(NGA)**

This Research Project is sponsored by the Life Line Program at Pacific Earthquake Engineering Research (PEER) Center.

Five "Groups" are conducting the research:

Abrahamson & Silva

Boore & Atkinson

Campbell & Bozorgnia

Chiou & Youngs

Idriss

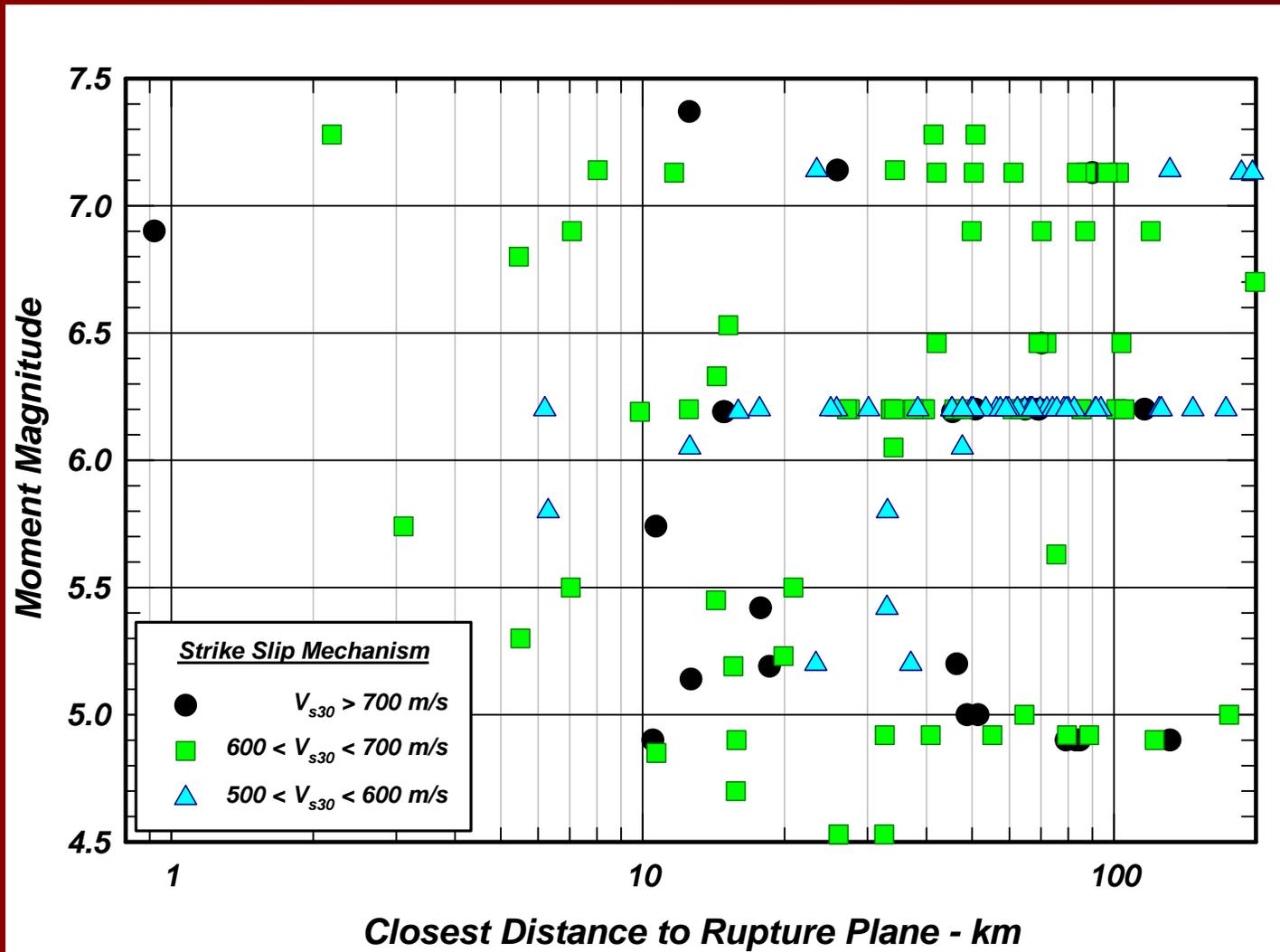
DATA COLLECTED

3440 Stations

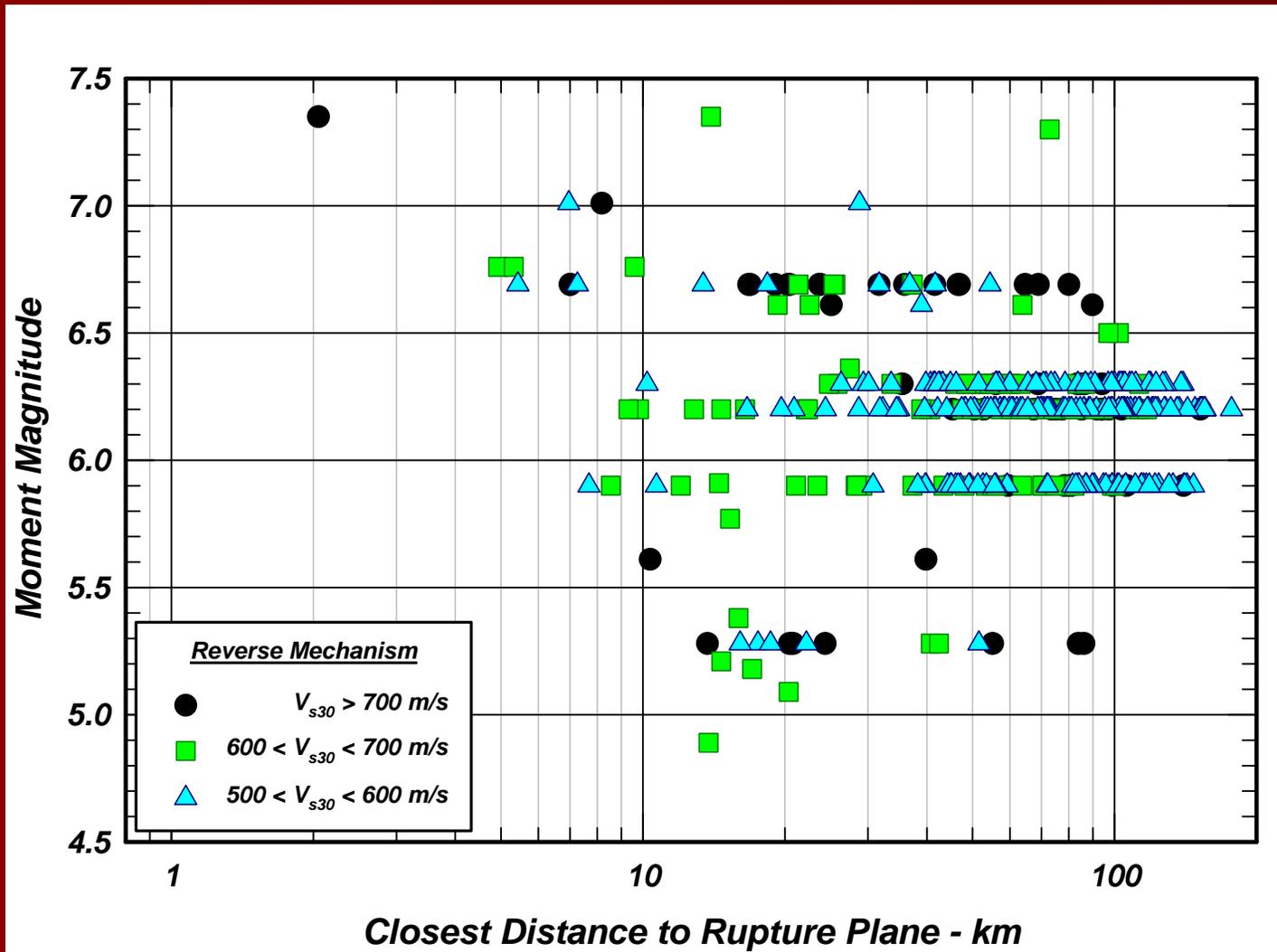
159 earthquakes

5 Site Categories (NEHRP)

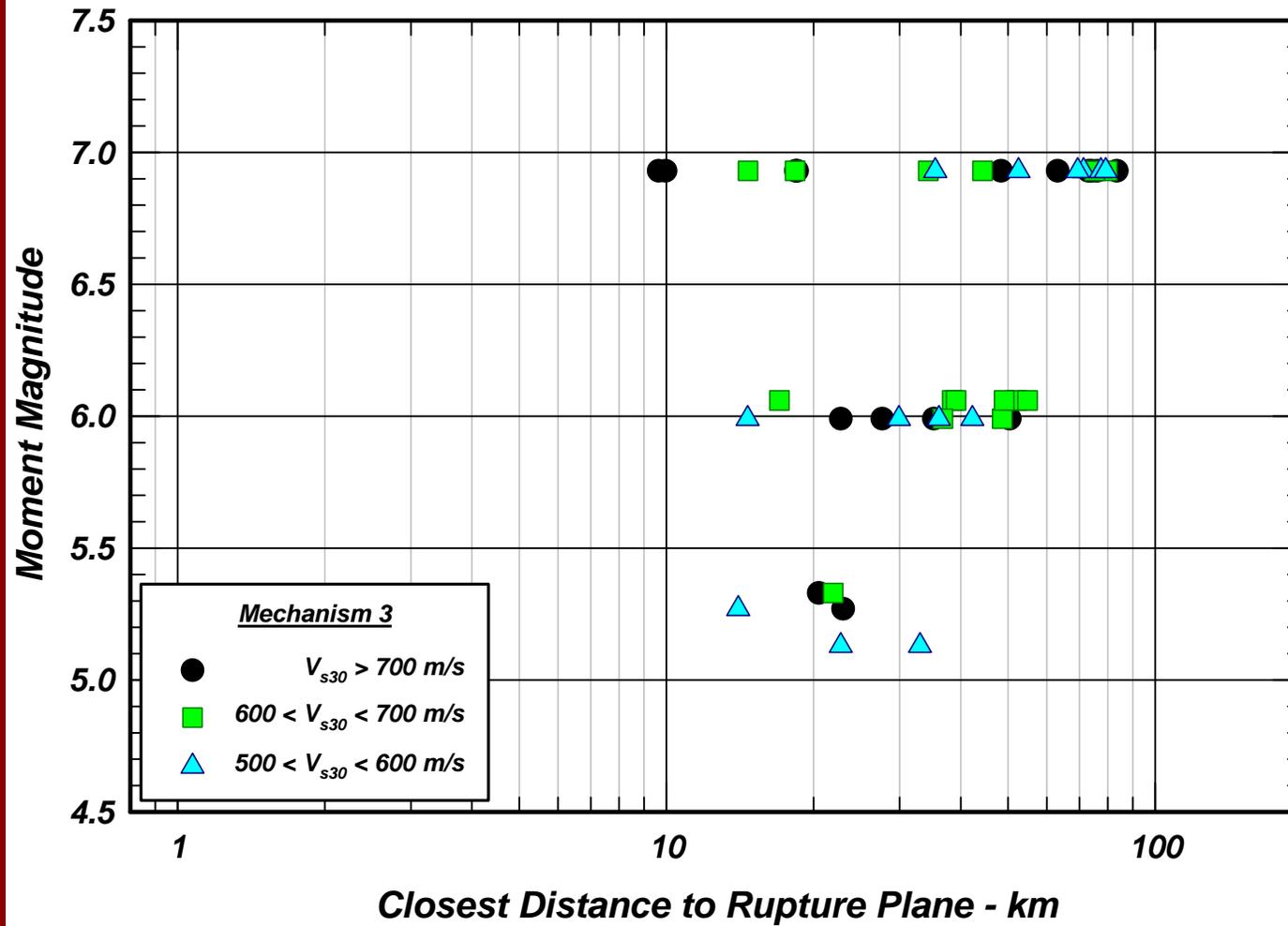
Major emphasis on V_{s30}



***Distribution of earthquake ground motion data
used to derive new generation attenuation (NGA)
relationships for WNA – Mechanism 0
158 Stations***



***Distribution of earthquake ground motion data
used to derive new generation attenuation (NGA)
relationships for WNA – Mechanism 2
388 Stations***



**Distribution of earthquake ground motion data used to derive new generation attenuation (NGA) relationships for WNA – Mechanism 3
159 Stations**

- *Work is still in progress*
- *Results will be presented at a Workshop in 2006*
- *Results will be reviewed by USGS (Workshop in mid 2006)*
- *Results to be available to public Late 2006*

PRELIMINARY RESULTS

Values

Effects of Mechanism

Standard Error Terms

Site Effects

Directivity

HW/FW