9th NEES/E-Defense Planning Meeting

Numerical Simulation
Breakout Session

Moderators:

Muneo Hori (University of Tokyo)

Marc Eberhard (University of Washington)

Recorder:

Krishnan Swaminathan (California Institute of Technology)

Other Participants from Japan

- Kenichi Abe (NIED)
- Keisuke Minagawa (Saitama Institute of Technology)
- Tomoshi Miyamura (Nihon University)
- Izumi Nakamura (NIED)
- Makoto Ohsaki (Hiroshima University)
- Akihito Otani (IHI Corporation)
- Tadahiro Shibutani (Yokohama National University)
- Takuzo Yamashita (NIED)

Other Participants from USA

- Chung-Soo Doo (Skidmore, Owings & Merrill LLP)
- Anne Lemnitzer (University of California, Irvine
- Ron Mayes, SGH)
- Satish Nagarajalah (Rice University)
- Shiling Pei (South Dakota State University)
- Sri Sritharan (Iowa State University)
- John van de Lindt (University of Alabama)

Summary of Discussion

- Advanced computing facilities available:
  - Kei-Soku-Keisanki supercomputer
  - EXCEED
  - Open Science Grid   (NEES allocation)

- Earthquake engineering not sufficiently taking advantage of available advanced computing capabilities.

How to facilitate use of data?

- Post-processing of raw data
  - Important, but much work
  - Develop "smart" system
  - Develop visualization tools
- Funding for analysis
  - Simulation "payload"
- Policies
  - 2 years OK
  - Dissemination after 2 years
  - Acknowledgment

What kinds of experiments are needed?

- Distributed instrumentation (2D/3D)
- Multi-scale data

Research Needs

- Models
  - Constitutive
  - Damage
- Facilitate creation and processing of large models
- Computational and integration technicques
- Model validation
- On-line grid computing technologies
- Multidisciplinary approaches
- Multi-scale research

Suggested Initiatives

- Direct collaboration between NEEScomm (OpenSees, NEEShub) and E-defense (KEI computing)
- Include advanced computational simulations in all NEES/E-Defense projects
- Need large initiative to provide critical mass
- Establish website to facilitate communication and collaboration
- Graduate student exchanges