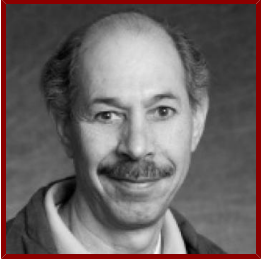


# Stanford

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## Atilla Aydin

Professor (Research) of Geological and Environmental Sciences, Emeritus  
Geological Sciences

### Bio

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#### ACADEMIC APPOINTMENTS

- Emeritus Faculty, Acad Council, Geological Sciences

#### HONORS AND AWARDS

- Fellow, Geological Society of America (2000)

#### PROFESSIONAL EDUCATION

- Ph.D., Stanford University , Geology (1978)
- M.S., Stanford University , Geology (1974)
- B.S., Technical University of Istanbul , Geological Engineering (1968)

#### LINKS

- Structural Geology and Geomechanics: <http://pangea.stanford.edu/research/geomech/index.html>

### Research & Scholarship

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#### CURRENT RESEARCH AND SCHOLARLY INTERESTS

##### Research

I am interested in the formation, geometric patterns, and fluid flow properties of fractures and faults in a broad range of scales. My students and I are involved in projects that require both a strong field component and modeling. The field component is similar to a detective's work, which aims to establish temporal and spatial relationships among various elements of a structure. The modeling component is like the moral of the story, enabling one to see through the rationale and use it for guidance in the future.

##### Professional Activities

Fellow, Geological Society of America; Member, American Geophysical Union and American Association of Petroleum Geologists

#### PROJECTS

- Rock Fracture Knowledgebase - Stanford University

### Publications

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#### PUBLICATIONS

- **Rock Fracture Knowledgebase**

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- **The dynamics and interaction of compaction bands in Valley of Fire State Park, Nevada (USA): Implications for their growth, evolution, and geostatistical property** *TECTONOPHYSICS*  
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- **Cross-bedding related anisotropy and its interplay with various boundary conditions in the formation and orientation of joints in an aeolian sandstone** *JOURNAL OF STRUCTURAL GEOLOGY*  
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- **Permeability of a fault zone crosscutting a sequence of sandstones and shales and its influence on hydraulic head distribution in the Chatsworth Formation, California, USA** *HYDROGEOLOGY JOURNAL*  
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- **The strength anisotropy of localized compaction: A model for the role of the nature and orientation of cross-beds on the orientation and distribution of compaction bands in 3-D** *JOURNAL OF GEOPHYSICAL RESEARCH-SOLID EARTH*  
Deng, S., Aydin, A.  
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- **Permeability characterization of natural compaction bands using core flooding experiments and 3D image-based analysis: Comparing and contrasting the results from two different methods** *American Association of Petroleum Geologists Bulletin*  
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- **Failure modes of shales and their implications for natural and man-made fracture assemblages** *AAPG BULLETIN*  
Aydin, A.  
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- **The relationship between normal and strike-slip faults in Valley of Fire State Park, Nevada, and its implications for stress rotation and partitioning of deformation in the east-central Basin and Range** *JOURNAL OF STRUCTURAL GEOLOGY*  
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- **Use of outcrop observations, geostatistical analysis, and flow simulation to investigate structural controls on secondary hydrocarbon migration in the Anacacho Limestone, Uvalde, Texas** *AAPG BULLETIN*  
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- **Quasi-static analysis of elastic behavior for some systems having higher fracture densities** *INTERNATIONAL JOURNAL FOR NUMERICAL AND ANALYTICAL METHODS IN GEOMECHANICS*  
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