Norumbega Fault System Of The Northern Appalachians

Norumbega Fault System of the Northern Appalachians-Allan Ludman 1999-01-01

Characterizing the Southwestern Extent of the Norumbega Fault System, a Mid-Paleozoic Crustal-scale Strike-slip Fault System in the New England Appalachians-Emilie Gentry 2018


Kinematic Vorticity and Porphyroclast Rotation in Mylonites of the Norumbega Fault System-Hendrik J. Lenferink 2008

The Norumbega Fault Zone, Great Pond Maine-Kevin Higgins 1992

The Effects of Seismic Stress Changes on Off-fault Deformation in the Norumbega Fault System, Southern Maine-Catherine Ross 2018 "Exhumed fault rocks contain records of past earthquakes and provide insights into deformation processes associated with seismic slip. Static stress changes caused by fault displacement may be of significant magnitude around fault bends, ends, intersections, and have been shown to partially explain aftershock distributions (Poliakov et al., 2002; Savage et al., 2017). Post-seismic relaxation
around the faults may change the recurrence interval of large events along certain fault strands in a fault system (Freed, 2005; Felzer and Brodsky, 2005; Richards-Dinger et al., 2010). In the brittle-ductile transition zone, these stress concentrations may be relaxed after earthquakes by ductile flow. I used an outcrop of pseudotachylyte faults and nearby deformed wallrock as a small-scale model of a seismic fault system to test whether wallrock deformation is the result of static stress changes associated with earthquake displacements. To do this, I used a newly developed technique of measuring strain across off-fault deformation features and comparing the strain to static stress change maps. I used Coulomb3, a fault modeling software, to model the static stress changes (with model inputs constrained by field observations) and compared the orientation and relative magnitude of compressive and tensile predicted stress changes with the shortening and elongation represented by wallrock deformation features. In the Fort Foster Brittle Zone (Kittery, Maine; Swanson, 2006), I mapped a 5.6 m-long area with two interconnected, sub-parallel pseudotachylyte fault veins cutting an ultramylonite zone, and associated wallrock deformation features including pseudotachylyte injections, pseudotachylyte-filled voids, mm-μm subsidiary faults, and folds. High-resolution photos, orientation measurements, and coseismic offsets were used to generate a simplified fault model in Coulomb3. I measured strain across the off-fault deformation features in the fault-parallel and perpendicular directions. Using microstructural analysis, I also determined the deformation mechanisms involved in the formation of each type of wallrock feature. As some deformation mechanisms are rate-limited, this information can also be used to infer whether features could have formed co-seismically, post-seismically, or require longer timescales of creep. I used spatial statistics (Local Indicators of Spatial Association or LISA) to test whether the areas of significant stress change predicted by the Coulomb3 model correlate with areas of substantial wallrock deformation on the strain map interpreted from field observations. The correlation of orientation and magnitude between static stress change and strain is strongest at the major bends in the bounding faults. The correlation confirms my hypothesis that stress changes caused by co-seismic displacements were at least partially relieved by off-fault deformation. The correlation between static stress change and strain is strongest for pseudotachylyte melt-related features and strike-slip faults, but weakest for the folds. The strong association implies that the melt-related features and strike-slip faults are the most likely features to have formed in the co- to post-seismic interval to facilitate post-seismic relaxation. Additionally, a microstructural analysis reveals that the deformation features (injection veins, dilational zones, and strike-slip faults) either involve pseudotachylyte melt production and quenching, brittle fracturing, or cataclasis with the exception of the folds. Cataclasis and frictional sliding are not rate-limited, but because strike-slip faults are strongly correlated with areas of static stress increase, and are therefore interpreted to form in response to co-seismic displacements, they can be constrained to the co- to post-seismic period. Features that are melt-filled represent coseismic deformation because of the short quench times of pseudotachylyte. The folds in the wallrock deformed by a combination...

Postglacial Faulting in the Vicinity of the Norumbega Fault Zone, Eastern Maine

Woodrow B. Thompson 1981
Variability in Structure, Strain and Demolition Mechanisms Across the Norumbega Fault Zone, Central Maine-Hui Wang 1996

Field Geology Education-Steven J. Whitmeyer 2009-01-01 "Field instruction has traditionally been at the core of the geoscience curriculum. The field experience has been integral to the professional development of future geoscientists, and is particularly important as it applies to student understanding of spatial, temporal, and complex relations in the Earth system. As important as field experiences have been to geosciences education and the training of geoscientists, the current situation calls for discipline-wide reflection of the role of field experiences in the geoscience curriculum in light of practical and logistical challenges, evolution in employment opportunities for geoscientists, and changing emphases in the geoscience curriculum. This volume seeks to broaden participation in field instruction by showcasing diverse approaches to teaching in the field across the many geo-disciplines encompassed by GSA."--books.google.

Multistage Shallow-crustal Shearing of the Deblois Granite in the Kellyland High-strain Zone-Susan A. Gibbons 1999

The Nature and Tectonic Significance of Fault Zone Weakening-Robert E. Holdsworth 2001 Many faults appear to form persistent zones of weakness that fundamentally influence the distribution, architecture and movement patterns of crustal-scale deformation and associated processes in both continental and oceanic regions. This book brings together papers by an international group of Earth scientists to discuss a broad range of topics centred upon the controls of fault weakening and the role of such faults during lithosphere deformation.

The Street Maps of Waldo County, Maine (2006)-Tay Vaughan 2006-06-01 Complete set of street maps containing E911 street names for all towns in Waldo County, Maine.

Deformation Mechanisms in Mylonites at Fletcher Peak, Washington County, ME-Ariana S. Boyd 2014 Mylonite formation and development is dependent on a number of factors including temperature, strain rate, and fluid fugacity. All three factors affect flow
stress and viscosity; thus, a variance in each will affect the development of mylonites. This study focuses on factors leading to the formation of mylonite surrounded by ultramylonite of the same protolith, along-strike to one another at the center of a fault zone. The rocks in question are from the Deblois granite cut by the Kellyland fault zone, a ductile strike-slip fault zone within the larger Norumbega fault system in eastern Maine. The Deblois granite as a whole experienced three stages of deformation within the Kellyland fault zone: a primary high-temperature phase, a second brief brittle phase, and a third long-lived ductile phase. The brittle phase prompted the widespread development of ultramylonite in the center of the shear zone; the zone of mylonite records no evidence for this brittle phase. The lack of brittle deformation in the mylonites was probably due to prolonged locally elevated temperatures and to a high fluid content during later stages of deformation. The implications for this study are that even in a setting of prolonged high-strain shearing, ultramylonites may not form without a primary brittle phase to weaken the overall rheology, and may not form in the presence of a fluid.

Intraplate Strike-slip Deformation Belts-Geological Society Publishing 2003


Summaries of Technical Reports- 1978


Granitic Systems-O.T. Ramo 2005-06-03 This special volume stems from a symposium 'Granitic Systems - State of the Art and Future Avenues' that was held at the Department of Geology, University of Helsinki to mark the retirement of Professor Ilmari Haapala. The twenty articles in the volume cover a wide range of granite-related topics and focus on three general themes: tectonics and source regions, petrologic processes, and fractionated granites and pegmatites. Both original papers and reviews are included, and the volume
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will be acknowledged by anyone with a background in Earth Sciences ad a flavor for granitoid rocks. * Comprehensive account of the current status of granite-oriented research * Topics ranging from mineralogy, petrology, and geochemistry to tectonics and crustal evolution


**Geological Survey Professional Paper**- 1979

**Summaries of Technical Reports, Volume IX**- 1980

**Encyclopedia of Geology**- 2020-12-16 Encyclopedia of Geology, Second Edition presents in six volumes state-of-the-art reviews on the various aspects of geologic research, all of which have moved on considerably since the writing of the first edition. New areas of discussion include extinctions, origins of life, plate tectonics and its influence on faunal provinces, new types of mineral and hydrocarbon deposits, new methods of dating rocks, and geological processes. Users will find this to be a fundamental resource for teachers and students of geology, as well as researchers and non-geology professionals seeking up-to-date reviews of geologic research. Provides a comprehensive and accessible one-stop shop for information on the subject of geology, explaining methodologies and technical jargon used in the field Highlights connections between geology and other physical and biological sciences, tackling research problems that span multiple fields Fills a critical gap of information in a field that has seen significant progress in past years Presents an ideal reference for a wide range of scientists in earth and environmental areas of study

**Geological Survey Research 1979**-Geological Survey (U.S.) 1979

**Area Recommendation Report for the Crystalline Repository Project**- 1986
From Rodinia to Pangea- Richard P. Tollo 2010 "The Appalachians constitute one of Earth’s major tectonic features and have served as a springboard for innovative geologic thought for more than 170 years. This volume contains 36 original papers reporting the results of research performed throughout nearly the entire length and breadth of the Appalachian region, including all major provinces and geographical areas. Memoir 206 was designed to commemorate the (near-)fortieth anniversary of the publication of the classic Studies of Appalachian Geology volumes that appeared just prior to the application of plate tectonic concepts to the region. Contributions concerning structural evolution, sedimentation, stratigraphy, magmatic processes, metamorphism, tectonics, and terrane accretion illustrate the wide range of ongoing research in the area and collectively serve to mark the considerable progress in scientific thought that has occurred during the past four decades."--pub. desc.

Ground Motion and Engineering Seismology- A.S. Cakmak 2015-08-11 Despite advances in the field of geotechnical earthquake engineering, earthquakes continue to cause loss of life and property in one part of the world or another. The Third International Conference on Soil Dynamics and Earthquake Engineering, Princeton University, Princeton, New Jersey, USA, 22nd to 24th June 1987, provided an opportunity for participants from all over the world to share their expertise to enhance the role of mechanics and other disciplines as they relate to earthquake engineering. The edited proceedings of the conference are published in four volumes. This volume covers: Seismicity and Tectonics in the Eastern Mediterranean, Seismic Waves in Soils and Geophysical Methods, Engineering Seismology, Dynamic Methods in Soil and Rock Mechanics, and Ground Motion. With its companion volumes, it is hoped that it will contribute to the further development of techniques, methods and innovative approaches in soil dynamics and earthquake engineering.

Case Studies in Wellhead Protection Area Delineation and Monitoring- Beth A. Moore 1993

The Acadian Orogeny- David C. Roy 1993

Atlantic Geology- 2003

Mélanges and Olistostromes of the U.S. Appalachians - J. Wright Horton 1989-01-01

Atlas of Structural Geology - Soumyajit Mukherjee 2020-12-10 This second edition of Atlas of Structural Geology features a broad and inclusive range of high-quality mesoscale and microscale full-color photographs, descriptions, and captions related to the deformation of rocks and geologic structures. It is a multicontributed, comprehensive reference that includes submissions from many of the world’s leading structural geologists, making it one of the most thorough and comprehensive references available to the geoscience community. All types of structures are featured, including those related to ductile and brittle shear zones, sigma and delta structures, mineral fish, duplexes and trapezoids, shear-related folds, and flanking structures in the mesoscale and microscale. This second edition features new and expanded coverage, including seismic-image interpretation, landslide deformations, flowing glacial structures, and more than 150 new full-color images to illustrate the geologic features. A stunning collection of the world’s most beautiful and arresting geologic structures, this book is the ideal resource to illustrate key concepts in geology. Presents more than 400 top-quality, full-color photographs contributed by the world’s most respected structural geologists Features a broad range of morphological variations of geologic structures, making it the most up-to-date and inclusive reference of its kind Aids researchers in developing mathematical and analogue models on the peculiarity and uniqueness of the world’s most iconic structures


Canadian Journal of Earth Sciences - 2012

NUREG/CR.-U.S. Nuclear Regulatory Commission 1978


Pannotia to Pangaea - B. Murphy 2021-01-28 Special Publication 503 celebrates the career of R. Damian Nance. It features 27 articles, with more than 110 authors based in 18 different countries. These articles include contributions on the processes responsible for the
formation and breakup of supercontinents, the controversies concerning the status of Pannotia as a supercontinent, the generation and destruction of Paleozoic oceans, and the development of the Appalachian-Ouachitan-Caledonide-Variscan orogens. In addition to field work, the approaches to gain that understanding include examining the relationships between stratigraphy and structural geology, precise geochronology, geochemical and isotopic fingerprinting, geodynamic modelling, regional syntheses, palaeogeographic modelling, and good old-fashioned arm-waving! The wide range of topics mirrors the breadth and depth of Damian’s contributions, interests and expertise. Like Damian’s papers, the contributions range from the predominantly conceptual to detailed field work, but all are targeted at understanding important tectonic processes. Their scope not only varies in scale from global to regional to local, but also in the range of approaches required to gain that understanding.
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