

# Alan D. Pitts

## Research Interests

My current research centers around basin analysis of syntectonic clastic basins in the central/southern Apennines and the relationship between stratigraphic architecture in sedimentary systems and tectonics using field mapping, structural analysis, petrography, and sequence stratigraphy.

## Education

July 2020 PhD, Geology, University of Camerino, Italy (In Progress)

Thesis: *Unmanned Aerial Vehicle (UAV) And Ground-Based Structure From Motion Photogrammetry For Stratigraphic And Structural Analysis*

Oct. 2016 Master of Science, Geology, University of Camerino, Italy

Thesis: Evolution and Stratigraphic Architecture in channelized turbidite systems of the Gorgoglione Flysch Formation

Jan. 2011 Bachelor of Arts, Geology, George Mason University

Aug. 2007 Associate of Arts, General Science, Northern Va. Com. College

## Research Experience

Nov 2016 – Present      University of Camerino, Italy      Research Assistant

Conducting field-based research program in geological science for the completion and a doctorate in research.

Dec 2010 - Aug 2015:      U.S. Geological Survey      Physical Science Technician

Student summer intern position with 4 summers experience working as support for the Eastern Geology and Paleoclimate Center in Reston, Va. Worked as field mapping assistant for the National Karst Project, National Landslide Hazards project and research assistant for the National Geology Map Database project.

Dec. 2010 – Dec. 2015:      NOVA. Community College      Research Assistant

NSF funded research program Google Earth for Onsite and Distance Education as a research assistant and investigator. Our mission is creating new forms of digital geoscience imagery intended as outreach, education and research.

### Teaching Experience

7/6/2020                      George Mason University                      Adjunct Professor

Co-developed new 3-credit virtual field camp alternative titled "Virtual Field Experience and Digital Geologic methods"

5/17-19                      University of Camerino                      Coordinator & Program Manager

Co- developed a 6-credit international summer geology field camp as a collaboration between the University of Camerino, Italy, and George Mason University. Served as manager of the field camp and coordinator for all projects and other aspects of the field course.

5/12 – 8/14:                      James Madison University                      Field Camp TA

Worked as full-time lead teaching assistant for 6-week geology field camp in Ireland. Duties included logistical support, management of field center, instructional duties in the field for all mapping projects, and co-leader of sedimentary systems project.

### Refereed Articles

11. Zambrano, Miller., Lucia, Mancini., **Pitts, Alan.**, Volatili, Tiziano., Giornioni, Maurizio., Tondi, Emanuele. 2020 pore-scale dual-porosity and dual-permeability modelling in an exposed porous carbonate reservoir. In review at Journal of Marine and Petroleum Geology.

10. Jablonska, Danica, **Pitts, Alan.**, Di Celma, Claudio, Emanuele, Tondi., 2020 3D outcrop modelling of Vertical Breccia Bodies in Cretaceous basinal carbonates of Apulia margin, Italy. In review at Journal of Marine and Petroleum Geology.

9. Luconi, Irene., Peci, Giorgia., **Pitts, Alan.**, Paris, Eleonora. 2020. Applicazione della Ricostruzione 3D a un Paiolo Proveniente Da Uno Scavo di Eta Medievale. 2020. Archeologica Italiana.

8. **Pitts, Alan.**, Di Celma, Claudio., Jablonska, Danica., Spina, Vincenzo., Mazzoli, Stefano., Emanuele, Tondi. 2020. Sedimentological and Stratigraphic signature of the Plio-Quaternary tectonic phases of the Southern Apennines: the Calvello Basin case study. *Journal of Marine and Petroleum Geology*.
7. M. Ghielmi, G. Serafini, A. Artoni, C. Di Celma, **A. Pitts**. 2019. From Messinian to Pleistocene: tectonic evolution and stratigraphic architecture of the Central Adriatic Foredeep (Abruzzo and Marche, Central Italy). *International Meeting of Sedimentology, Rome Italy. Field Trip Guide*
6. Di Celma, Claudio., **Pitts, Alan.**, Jablonska, Danica. 2019. Backset lamination induced by supercritical backwash flows at the beachface-shoreface transition of a storm-dominated gravelly beach (middle Pleistocene, central Italy). *Marine and Petroleum Geology*
5. Zambrano, Miller. **Pitts, Alan**. Salama, Ali, Tiziano, Volatili. 2019. Analysis of fracture roughness control on permeability using SfM and fluid flow simulations: Implications for carbonate reservoir characterization. *Geofluids*.
4. Haynes, John T., **Alan D. Pitts**, Daniel H. Doctor, Richard J. Diecchio, B. Mitchell Blake, Jr., 2018, *Appalachian Basin Stratigraphy, Tectonics, and Eustasy from the Blue Ridge to the Allegheny Front, Virginia and West Virginia: West Virginia Geological and Economic Survey, Field Trip Guide FTG-10*, 86 p.
3. Stéphane Baize, Massimiliano Barchi, Lucilla Benedetti, Anna Maria Blumetti, Paolo Boncio, Francesco Brozzetti, Francesca Cinti, Paolo Marco De Martini, Fabrizio Agosta, Paolo Galli, Laura C. Gregory, Luca Guerrieri, Chiara Invernizzi, Danica Jablonska, Giusy Lavecchia, Franz Livio, Kenneth J.W. McCaffrey, Alessandro Maria Michetti<sup>12</sup>, Gilberto Pambianchi, Daniela Pantosti, Ioannis Papanikolaou, Luigi Piccardi, Pietro Paolo Pierantoni, **Alan Pitts**, Alberto Pizzi, Hannah Riegel, Gerald Roberts, Emanuele Tondi, Eutizio Vittori, Tiziano Volatili, Miller Zambrano. 2017, *Three Destructive Earthquakes in the Central Apennine Fault System. Field Trip Guide book and Program with Abstracts*.
2. **Pitts, Alan D.** Cassciano, Claudio. Patacca, Marco, Di Celma, Claudio. McCaffery, William. 2017. Integrating traditional field methods with emerging digital techniques for enhanced outcrop analysis of deepwater channel-fill deposits. *Journal of Marine and Petroleum Geology*.
1. Aringoli, D., Farabollini, P., Giacometti, M., Materazzi, M., Paggi, S., Pambianchi, G., Pietro Paolo Pierantoni, Pistolesi, E., **Pitts, A.**, and Tondi, E., 2016, The August 24th 2016 Accumoli earthquake: surface faulting and Deep-Seated Gravitational Slope Deformation (DSGSD) in the Monte Vettore area: *Annals of Geophysics*, v. 59, doi: 10.4401/ag-7199.

### Articles Popular and non-refereed

Callan Bentley, **Alan Pitts**. The Jewel of the Apennines – Italy's Monti Sibillini National Park. Earth Magazine "Travels in Geology" November, 2018.

[https://www.earthmagazine.org/node/22171?fbclid=IwAR3yu5\\_Mg6hqUGyrVbONTyxHhY3zEI32a-VgLTV3UrqKW3AYnn-bKAQv9U](https://www.earthmagazine.org/node/22171?fbclid=IwAR3yu5_Mg6hqUGyrVbONTyxHhY3zEI32a-VgLTV3UrqKW3AYnn-bKAQv9U)

**Alan Pitts**. Handbook on how to be an Open Scientist. European Council for Doctoral Candidates and Young Researchers. November, 2018.

<http://eurodoc.net/news/2018/handbook-on-how-to-be-an-open-scientist-for-early-career-researchers>

### Conference Abstracts ( \* indicates talks)

28. **Pitts Alan.**, McBride Randolph., Jablonska Danica., Di Celma Claudio., Tondi Emanuele. Geology Field Camp in Italy : Apennine Mountains, Vesuvius and Rome. Geological Society of America Annual conference. Phoenix Arizona, September 2019

27. **Pitts Alan.**, Di Celma Claudio., Giuli Gabriele., Haynes John., Detailed outcrop characterization of high-frequency sequence boundaries in the Pliocene Peri-Adriatic shallow marine succession revealed through UAV cliff-side digital outcrop mapping. International Association of Sedimentology – Rome, September 2019

26. Di Celma Claudio., **Pitts Alan.**, Jablonska Danica., Hanyes John., Backset lamination induced by supercritical backwash flows at the beachface-shoreface transition of a storm-dominated gravelly beach (middle Pleistocene, central Italy) - International Association of Sedimentology – Rome, September 2019

25. Casciano Claudio., Patacci Marco., **Pitts Alan.**, Di Celma Claudio., Catalano Stefano., Di Stefano Agata., Depositional Geometries and Sedimentological Characterization of Tabular Deposits in Tectonically-Confined Turbidite Basins: The Gorgoglione Flysch (Italy) International Association of Sedimentology – Rome, September 2019

24. **\*Pitts Alan.**, Spina, Vincenzo., Mazzoli Stefano., Di Celma Claudio., Investigating Stratigraphic and Structural Architecture from the Sky: An example from the Calvello Basin, Southern Italy. Annual Meeting of the Geological Society of Italy. Catania, Italy, September 12-14<sup>th</sup> 2018

23. Zambrano Miller., **Pitts Alan.**, Salma Ali., Giorgioni Maurizio., Tondi Emanuele. - Assessment of the fracture roughness and their control on single fracture permeability in

carbonates. Annual Meeting of the Geological Society of Italy. Catania, Italy, September 12-14<sup>th</sup> 2018

22. \***Pitts Alan D.**, Di Celma Claudio., Tondi Emanuele., Mazzoli Stefano., Spina Vincenzo., 3D tectono-stratigraphic architecture and evolution of Plio-Pliocene thrust-top basins of the southern Apennines: A case study from the Calvello Basin, Italy. European Geoscience Union General Assembly. Vienna, Austria April 8-13<sup>th</sup>. 2018

21. \*Reigel Hannah., Jablonska Danica., Tondi Emanuele., **Pitts Alan.**, Di Celma Claudio., Zambrano Miller., Agosta Fabrizio., Mattioni Luca., 2018. The impact of mechanical layering on fracture propagation in faulted heterolithic siliciclastic succession. European Geoscience Union General Assembly. Vienna, Austria. April 8-13<sup>th</sup>. 2018

20. Zambrano Miller., **Pitts Alan.**, Giorgini Mariano., Tondi Emanuele. A methodology for assessing the roughness and the hydraulic aperture in open fractures integrating photogrammetry and computational fluid dynamics. European Geoscience Union General Assembly. Vienna, Austria. April 8-13<sup>th</sup> 2018

19. **Pitts Alan.**, Di Celma Claudio., Tondi Emanuele., Mazzoli Stefano., Spina Vincenzo., Structural and stratigraphic evolution of Plio-Pliocene thrust-top basins of the southern Apennines: A case study from the Calvello and Sant'Arcangelo Basins. American Association of Petroleum Geologists – European Section Meeting, Granada, Spain. March 15-16<sup>th</sup>. 2018

18. **Pitts Alan.**, Di Celma Claudio., Bentley Callan. - Using UAV-based Structure from motion photogrammetry for mapping stratigraphic architecture in sedimentary systems. Geological Society of America Annual Conference Seattle. 2018

17. **Pitts Alan.**, McBride, Randy., Kysar Mattieti, Giuseppina., Tondi Emanuele., Di Celma Claudio. - Geology Field Camp in Italy, a new international field experience in geological mapping and geological hazards. Geological Society of America Annual Conference Seattle. 2017

16. \***Pitts Alan.**, Cassciano Claudio., Di Celma Claudio - Integrating traditional field methods with emerging digital techniques for enhanced outcrop analysis of deepwater channel-fill deposits. Geological Society of America Annual Conference, Denver, Colorado. 2016

15. **Pitts Alan.**, Dudek, Marissa J., Bentley, Callan. 2016. 3D Photogrammetry as a tool for creating virtual outcrops and building virtual field experiences for geoscience education. Geological Society of America Annual Conference, Denver, Colorado.

14. Dudek Marissa J., Bentley Callan., **Pitts Alan.** Utilizing Digital 3D Hand Samples in Geoscience Education. Geological Society of America Annual Conference, Denver, Colorado. 2016

12. **Pitts Alan.**, Cassciano Claudio., Di Celma Claudio., Anatomy and facies characterization of turbidite channel fill deposits: a case study from the Gorgoglione Flysch Formation, Southern Italy. American Association of Petroleum Geologist, Eastern European Section, Bucharest, Romania 2016.
11. **Pitts Alan.**, Cassciano, Claudio. Di Celma Claudio. - Anatomy and facies characterization of turbidite channel fill deposits: The Santa Mara Channel from the Gorgoglione Flysch Formation, Southern Italy. University of Camerino Annual Research Symposium. 2016.
10. **Pitts Alan.**, Bentley Callan. A Digital Field Guide: Using Gigapixel Imagery and Google Earth as Tools to Create Digital Field Guides and Virtual Field Experiences in geology. Geological Society of America Annual Conference. Baltimore, Maryland. 2015.
9. Haynes John T., **Pitts Alan.**, Doctor Daniel H., Diecchio Richard., Blake Mitch., Appalachian Stratigraphy, Tectonics and Eustasy From The Blue Ridge To The Allegheny Front, Virginia And West Virginia. Geological Society of American Scientific Field Trip, Annual Conference, Baltimore Maryland. 2015.
8. Soller David., Withers Emma., **Pitts Alan.**, Garrity Christopher P., Wardwell Robert C., And Stamm Nancy R., 2015. World War II-Era Geologic Maps and Reports of Pacific Islands – Improving Their Accessibility Via the Web. Geological Society of America Annual Conference. Baltimore, Maryland.
7. Dudek, Marissa J. Bentley, Callan. Rohrback-Schiavone, Robin **Pitts, Alan D.** 2015 Gigapans and Their Use in Geoscience Education and Field Research. Geological Society of America Annual Conference. Baltimore, Maryland.
6. Dudek, Marissa J. Bentley, Callan. Rohrback-Schiavone, Robin **Pitts, Alan D.** 2015. Fake Field Trips: Using Gigapans of Outcrops and Hand Samples as “Bricks” In Constructing an Unreal Virtual Field Experience. Geological Society of America Annual Conference. Baltimore, Maryland.
5. De Paor, Declan G.,Whitmeyer, Steven J. Bentley, Callan, Northern Virginia Community College And Team Geode, 2015. Interactive Digital Learning for Geoscience Students: Earthquiz and Other Web-Hosted Challenges. Geological Society of America Annual Conference. Baltimore, Maryland.
4. **Pitts, Alan D.**, Casciano, Claudio Ivan., Di Celma, Claudio., Mccaffrey, William. 2014. Depositional Architectural Elements in Turbidite Channel Systems. Gorgoglione Flysch Formation (Basilicata, Southern Italy). Geological Society of America Annual Conference, Vancouver, Washington.
3. **Pitts, Alan D.**, Bentley, Callan. Rohrback-Schiavone, Robin. 2014. Using Photogrammetry, Gigapans and Google Earth to Build Virtual Outcrops for Geologic

Research and Educational Outreach. Geological Society of America Annual Conference, Vancouver, Washington.

2. Rohrback-Schiavone, Robin. Bentley, Callan. **Pitts, Alan D.** 2013. Gigapans as A Tool for Sharing, Learning, And Outreach. Geological Society of America Annual Conference. Denver, Colorado.

1. Rohrback-Schiavone, Robin. Bentley, Callan. **Pitts, Alan D.** 2012. Making the M.A.G.I.C. (The Mid Atlantic Geo-Imagery Collection). Geological Society of America Annual Conference. Charlotte, North Carolina.

### Invited Talks and Seminars

#### October 2019-

November 2018 – New and upcoming plans for the GMU/Unicam Geology Field Camp: Apennine Mountains, Vesuvius, and Rome

September 2018 – How to be an open scientist. University of Camerino Open Science day

February 2018 – UAV exploration of outcrop-scale sedimentary architecture to understand basin scale processes. Talk for the University of Camerino Reservoir Characterization Project Sponsors workshop, Shell Italia

December 2017 – 3D Tectono-Stratigraphic Evolution of Plio-Pleistocene Thrust Top Basins in the Southern Apennine Mountains. Talk at the University of Camerino Reservoir Characterization Project Sponsors Meeting.

September 2017 – “A Country Tearing Apart” – My experience in the 2016/2017 Central Italy earthquakes. Northern Virginia Community College, Geology Club Seminar Series

September 2017 – Geology Field camp in Italy, a new international field experience in geologic field mapping and geological hazards. George Mason University, Department of Atmospheric, Oceanic and Earth Sciences Seminar Series.

September 2017 – The Distal Gorgoglione Flysch Formation – introduction and overview- talk to the Turbidite Research Group Annual Sponsors Meeting. Leeds University, Leeds, UK

December 2016 - Evolution and Stratigraphic Architecture of Channel-Lobe Turbidite Systems from the Gorgoglione Flysch Formation, Southern Italy. George Mason

University Department of Atmospheric, Oceanic, and Earth Sciences Seminar Series.

September 2015 - Appalachian Stratigraphy, Tectonics and Eustasy Virtual Field Trip in-class lab assignment. Northern Virginia Community College, Historical Geology.

January 2014 - Using GigaPan Imagery for Enhanced Outcrop Mapping. US Geological Survey, Eastern Geology and Paleoclimate Science Center Seminar Series.

June 2013 - Deep Water Depositional Systems – Processes and Deposits. Seminar for the James Madison University Field Camp in Ireland.

### **Fieldtrip and Workshop Organization**

September 2019 - From Messinian to Pliocene: Tectonic Evolution and Stratigraphic Architecture of the Central Adriatic Foredeep (Abruzzo and Marche, Central Italy). International Association of Sedimentology – Field Trip Co-leader

December 2018 – “Tectonic Evolution of the Appalachians “. American Geophysical Union Field Trip. Washington DC. Field Trip Co-leader

July 2017- Three Destructive Earthquakes in the Central Apennine Fault System – University of Camerino International Field trip and workshop, Organizing committee

November 2015 - Appalachian Stratigraphy, Tectonics, and Eustasy, GSA Annual meeting scientific field trip, Field trip Co-leader

October 2015 - Appalachian Stratigraphy, Tectonics and Eustasy Field Trip. Northern Virginia Community College, Historical Geology.

September 2014 - Corridor H West Virginia, Field trip for the Geological Society of Washington, Field Trip Co-leader.

### **Tutoring Activities**

July 2020 – Fundamentals of Cartography

May 2017-2019 - English language course – Town of Camporotondo di Fiastrone elementary school. Camporotondo, Italy

May 2014 – Sedimentology Petrology Lab Practical. University of Camerino.

May 2011 – Tutor for Sedimentary Geology. George Mason University.



Aug 2010 – Tutor for Mineralogy. George Mason University

### **Academic Committee Positions**

November 2016 – July 2020: School of Science and Technology PhD committee member, University of Camerino

Dec 2016- Dec 2019: PhD student representative to the University of Camerino School of Advance Science

Dec 2016- Dec 2019: Graduate student admissions selection committee

Dec 2016- Dec 2019: Erasmus international exchange program committee member for geoscience

Oct 2012 - May 2014: MSc student representative to the University of Camerino School and Science and Technology

### **Research Affiliations**

Reservoir Characterization Project, University of Camerino. Primary research group

Turbidite Research Group, University of Leeds UK. Co-sponsor of research in S. Italy

Ecotiles, University of Camerino – Sustainable building resource research group

GEODE, Nova Virginia Community College - NSF funded research team

### **Professional Affiliations**

American Geophysical Union – Graduate student member

Geological Society of America – Sedimentary Geology Division

American Association of Petroleum Geology – Student Member

European Geoscience Union – Student member

### **List of Professional References**

**Claudio Di Celma** (PhD Thesis Advisor)  
Associate professor of Geology  
School of Science and Technology – Geology Division  
University of Camerino, Camerino Italy

E-mail: [claudio.dicelma@unicam.it](mailto:claudio.dicelma@unicam.it)

**John Haynes** (Former Professor, Co-Author)  
Associate Professor of Geology  
Department of Geology and Environmental Science MSC 6903  
James Madison University Harrisonburg VA 22807  
Phone: 540-568-5221  
E-mail: [haynesjx@jmu.edu](mailto:haynesjx@jmu.edu)

**Callan Bentley** (Former Professor – Research supervisor)  
Assistant Professor of Geology  
Math, Science, & Engineering Division, Annandale Campus  
Northern Virginia Community College Annandale, VA 22003  
Phone: 703.323.3276  
E-mail: [cbentley@nvcc.edu](mailto:cbentley@nvcc.edu)