

# Curriculum Vitae

CV: SOFIA PECHLIVANIDOU



## I. PERSONAL INFORMATION - EMPLOYMENT - EDUCATION - GRANTS - LANGUAGES - SKILLS

### 1. PERSONAL INFORMATION

- *Nationality* Greek
- *Address* School of Geology, Faculty of Sciences, Aristotle University of Thessaloniki
- *E-mail* [sofiapehli@geo.auth.gr](mailto:sofiapehli@geo.auth.gr)  
[sofia.pechlivanidou@uib.no](mailto:sofia.pechlivanidou@uib.no)
- *Telephone* +30 2310 998554
- *Webpage* <https://www.researchgate.net/profile/Sofia-Pechlivanidou>

### 2. EMPLOYMENT

- *Dates* **02/23 - TODAY**
- *Employer* Aristotle University of Thessaloniki, Greece
- *Department* Physical and Environmental Geography
- *Occupation:* Assistant Professor
- *Research tasks:*
  - **Physical Geography - Sedimentology**
- *Dates* **02/22 - 02/23**
- *Employer* University of Bergen, 5020, Bergen, Norway
- *Occupation:* Researcher within the 'Basin and Reservoir Studies' group
- *Project:* **DeepRift project**
- *Research tasks:*
  - Sedimentological and statistical analysis of deep-sea sediment gravity flows within the Corinth Gulf
- *Dates* **10/21 - 01/22**
- *Employer* University of Bergen, 5020, Bergen, Norway
- *Occupation:* Researcher within the 'Basin and Reservoir Studies' group
- *Project:* **iCorinth**
- *Research tasks:*
  - Assist with initial development of a virtual field course on the Corinth Rift linked to iEarth teaching development. This work involves integration of existing structural and sedimentological data from the Corinth Rift and implementation of the virtual field course.
- *Dates* **05/2020 - 11/2020 AND 02/21 - 07/2021**
- *Employer* University of Bergen, 5020, Bergen, Norway
- *Occupation:* Researcher within the 'Basin and Reservoir Studies' group
- *Research tasks:*
  - Integration of bed-scale analysis of sedimentology with O-isotope, U/Th, magnetostratigraphic chronologies and micropaleontological data in order to understand paleoenvironmental changes over the last 125 kyr for the Gulf of Corinth.
- *Dates* **08/2018 - 01/2020**
- *Employer* University of Bergen, 5020, Bergen, Norway
- *Occupation:* Researcher within the 'Basin and Reservoir Studies' group
- *Project:* **Erosion and syn-rift deposition in the Corinth Rift, Greece**
- *Research tasks:* PRINCIPAL INVESTIGATOR: prof. Robert Gawthorpe
  - Investigate how fault network growth and climate change over the last 130 kyr affects rift margin erosion and syn-rift sedimentation using a combination of analysis of core data from IODP Expedition 381, offshore seismic and fault and landscape numerical modelling.
- *Dates* **01/2017 - 06/2018**
- *Employer* University of Bergen, 5020, Bergen, Norway
- *Occupation:* Researcher within the 'Basin and Reservoir Studies' group

- *Project:*
- *Research tasks:*
- *Dates*
- *Employer*
- *Occupation:*
- *Project:*
- *Research tasks:*
- *Dates*
- *Employer*
- *Occupation:*
- *Main activities:*
- *Dates*
- *Employer*
- *Occupation:*
- *Main activities:*
- *Dates*
- *Employer*
- *Occupation:*
- *Main activities:*

### **Syn-Rift Systems: Outcrop Analogues and Subsurface Applications**

PRINCIPAL INVESTIGATOR: prof. Robert Gawthorpe

- Investigate the fundamental controls on erosion, sediment routing and deposition within syn-rift successions (e.g., reservoir analogues in the Corinth Rift) and apply this understanding to syn-rift play concepts on the Norwegian continental shelf.
- Numerical modelling of landscape evolution and normal fault network growth to investigate spatial-temporal variations in erosion and depositional patterns in the Corinth Rift.
- Basin filling modelling to simulate the formation of clinoform packages (e.g., Rogn Fm. Play, Frøya High) in Northern Sea.

**11/2013 - 11/2016**

University of Bergen, 5020, Bergen, Norway

Postdoctoral research fellow

### **MultiRift project–Theme 3: Interactions between tectonics and surface processes in rifts**

PRINCIPAL INVESTIGATOR: prof. Patience Cowie

- Investigate structural controls on erosion, sediment reworking/transport and basin sedimentation in multi-phase rift systems using landscape evolution modelling.
- Understand erosional and depositional processes and quantify sediment supply variations from source to sink in active rifts (e.g., Sperchios Rift) using field observations and numerical modelling.

**03/2010 - 05/2010**

Bjerknes Centre for Climate Research, 5007 Bergen, Norway

Supervisor: prof. Atle Nesje

Internship

Sedimentological, geochemical and mineral magnetic analysis of clastic sediments from core samples.

**05/2007 - 05/2008**

National Agricultural Research Foundation, Land Reclamation Institute, 57400, Sindos, Greece

Internship

Environmental and hydrogeological studies.

**01/2004 - 06/2004**

Shediasmos–Ktimatografiki S.A. – Technical Projects and Infrastructure Works Consultants, 54655, Thessaloniki, Greece

GIS expert

GIS applications

### **3. EDUCATION**

- *Dates*
- *Institute*
- *Title of qualification awarded:*
- Ph.D. Thesis:*
- Supervisor*
- *Principal subjects and methods:*
- Funding*
- *Dates*
- *Institute*
- *Title of qualification awarded:*
- Master Thesis:*

**2008 - 2012**

Aristotle University of Thessaloniki, Greece

Doctor of Philosophy in Geology (Graded Excellent)

*‘Modelling the sedimentological and the geomorphological evolution of the Sperchios River delta, Greece, during the Holocene’*

Prof. Albanakis Konstantinos

- Core logging and multi-proxy analysis of clastic sediments from core samples (grain-size, geochemical and paleontological analysis, mineral magnetic measurements and radiocarbon dating) to construct a high-resolution sequence stratigraphic model for the Sperchios delta during the Holocene.
- Numerical modelling of sedimentary basin filling (Sedflux 2D) to understand controls on the Sperchios delta development in time and space.

State Scholarship Foundation (I.K.Y.)

**2004 - 2007**

Aristotle University of Thessaloniki, Greece

Master of Science in Geomorphology (Graded Excellent)

*‘The impact of geomorphology on land cover & land use of Skyros Island, Aegean Sea, Greece’*

- Supervisor
- Principal subjects and methods:
  - Dates
  - Institute
  - Title of qualification awarded:
  - B.A. Thesis:
  - Principal subjects and methods:

Prof. Vouvalidis Konstantinos

- Quantitative geomorphological methods and geoinformatics (GIS) to understand how topographic variability affects land cover and land use.

**1998 - 2003**

Aristotle University of Thessaloniki, Greece

Bachelor in Geology (Graded Very Good)

*'Geophysical and neotectonic methods for studying geothermal fields'*

- Review of the methods used to understand the geothermal field of Milos Island (Aegean Sea).

#### 4. PERSONAL GRANTS & ACHIEVEMENTS

• Dates

**2019**

Akademia Mobility Fund to present my research at the American Geophysical Union (AGU) fall meeting

• Dates

**2017-2018**

Selected as a sedimentologist to join the Science Party for the **'IODP Expedition 381: Corinth Active Rift Development'** organized by the European Consortium for Ocean Research Drilling (ECORD)

• Dates

**2017**

Akademia Mobility Fund to present my research at the American Geophysical Union (AGU) fall meeting

• Dates

**2015**

Akademia Mobility Fund to give an oral presentation at the European Geosciences Union (EGU) international conference

• Dates

**2010**

Funded by the State Scholarship Foundation (I.K.Y.) for Erasmus student mobility for placement at the Bjerknes Centre for Climate Research, Bergen, Norway

• Dates

**2008**

Awarded a 3.5-year grant from the State Scholarship Foundation (I.K.Y.) to perform doctoral studies in Geology

• Dates

**2003**

Award for best student performance in my final year of the Bachelor degree

• Dates

**2002**

Funded by the State Scholarship Foundation (I.K.Y.) for Erasmus student mobility for studies at the Department of Geography and Earth Sciences, Brunel University, Uxbridge, UK

#### 5. LANGUAGES

##### English

First Certificate in English (Cambridge)

##### French

D.E.L.F. 1er Degré des 4 unites de contrôle de la série A et Certificat de langue Française

##### Norwegian

Level 1 (NOR-U1)

#### 6. SKILLS & EXPERIENCE

##### Computer skills

- I have experience in numerical modelling of erosional/depositional processes. I have used the processed-based model Sedflux2D to simulate the evolution of the Sperchios delta (Greece), and the landscape evolution model CHILD to simulate the evolution of topographic surfaces under a set of driving erosion and sedimentation processes. Currently, I am using the surface processes model pyBadlands to explore spatial and temporal variations in sediment supply from source-to-sink within the Corinth Rift.
- I am specialized in terrain analysis using Geographical Information Systems (ArcGIS & Global Mapper).
- I have experience in visualization and analysis of large 3D dataset (CT-scans) using Avizo 3D software.
- I am very competent with statistical packages for grain-size analysis (Gradistat, Grapher).

## Laboratory Experience

- I have experience in Matlab and python for data analysis, visualization and basic coding.

I am experienced in:

- Core logging and interpretation of stratigraphic structures from sediment cores. I have described three long cores (1645 m total length) from the gulf of Corinth, as part of the onshore science party for IODP Expedition 381. Also, I have described and interpreted short cores (<50 m each) obtained from the Sperchios delta plain during my PhD studies.
- Sedimentological analysis of clastic sediments. I have used a suite of grain-size techniques including Sedigraph/Mastersizer and wet-dry sieving for granulometric analysis of sand-silt-clay accumulations and also methods for morphometric gravel analysis.
- Measuring and interpreting mineral magnetic properties (e.g., magnetic susceptibility, ARM, IRM) on sediment samples.
- Obtaining and interpreting elemental compositions using the x-ray fluorescence technique (XRF core scanning).

## Field Experience

*Dates*

Main activities:

October 2015

Ten days collecting grain-size data to quantify spatial variations in sediment supply from source-to-sink in the Sperchios Rift, Greece.

*Dates*

Main activities:

October 2014

Five days at the Sperchios rift basin (Greece) to collect field data concerning channel geometry, rock mass strength and grain-size. Measurements were made using a differential GPS, a laser range finder, a Schmidt hammer and scaled photos of active gravel bars.

*Dates*

Main activities:

2012 - 2013

Three field trips at the Katarraktes cave system, Greece, to collect sediment samples from archeological and natural sections inside the cave for paleoenvironmental reconstructions.

*Dates*

Main activities:

2007 - 2012

During my PhD studies, I had numerous field trips to collect short cores from the Sperchios deltaic plain (Greece) and to perform the geomorphological mapping of the area.

*Dates*

Main activities:

2005, 2006

I took part in three paleontological excavations in northern Greece as part of the paleontological team of the Aristotle University of Thessaloniki.

*Dates*

Main activities:

2002

One week of geological mapping at the broader area of the Thessaloniki plain, Greece, as part of my Bachelor studies.

## Organization of Scientific Meetings

- Member of the organizing committee of the '1st Meeting of the Hellenic Geomorphological Union' at the Aristotle University of Thessaloniki, Greece (2005).
- Member of the organizing committee of three hydrogeological meetings during 2007.

## Referee Services

- Marine and Petroleum Geology journal

## Administration Services

- I served as member on three evaluation committees for selecting Ph.D. candidates at the Department of Earth Science, University of Bergen

## II. RESEARCH – SCIENTIFIC PROJECTS – INVITED TALKS

### RESEARCH INTERESTS

My research interests lie within the fields of sedimentology and geomorphology with a particular focus on source-to-sink analysis of active rift basins. My main research aim is to understand the impact of tectonics and climate on erosional and depositional processes and the dynamics of sediment routing systems within rift settings using field data and numerical modelling.

### SCIENTIFIC PROJECTS

• 17/02/2022 - 16/02/2013

**DeepRift project** (\$3.3 million), University of Bergen, Norway, funded from the Research Council of Norway and *AkerBP*, *ConocoPhillips*, *Equinor*, *Neptune Energy*.  
Principal Investigator: prof. Robert Gawthorpe.

• 2018 - ΣΗΜΕΡΑ

**IODP Expedition 381: Corinth Active Rift Development** (\$11.3 million) of the European Consortium For Ocean Research Drilling (ECORD) (<http://www.ecord.org/expedition381>)  
Co-Chief Scientists: prof. Lisa McNeill; As. prof. Donna Shillington.

• 01/01/2017 - 30/06/2018

**Syn-Rift Systems-Outcrop Analogues and Subsurface Applications** (\$3.2 million) University of Bergen, Norway, funded from the Research Council of Norway and *Statoil AS*, *Tullow*, *Faroe*, *ConocoPhillips*, *AkerBP*, *VNG Norge*.

• 11/2013 - 11/2016

Principal Investigator: prof. Robert Gawthorpe.

**MultiRift project: Numerical modelling of fault growth and syn-rift surface processes Theme 3: Interactions between tectonics and surface processes in rifts (\$2.5 million)**, University of Bergen, Norway, funded from *Statoil AS* and the Research Council of Norway. (<http://org.uib.no/multirift/>).

Principal Investigators: prof. Robert Gawthorpe; prof. Haakon Fossen; prof. Ritske Huismans; prof. Patience Cowie.

• 2007 - 2010

**Geoarchaeological and palaeogeographical investigations in the Sperchios Valley (central Greece)**, funded from INSTAP.

Principal Investigator: Konstantinos Vouvalidis

• 2008

**Biology, Ecology and stock assessment for fishery management planning of the species *Ostrea edulis*, *Callista chione* και *Venus verucossa* in Thermaikos Gulf.**

Principal Investigator: Konstantinos Albanakis

• 2007

**-Implementation of management measures at the Agras wetland – LIFE03 NAT/GR/000092 (843,500.00 €)**

**-Study of irrigation water cost in the Pinios basin (Tirnabos sub-basin).**

**-Applying artificial beneficialiation in the wider area of Toumba, Kilkis Prefecture, using dual-purpose drilling (enrichment-pumping).**

**-Residues of soil fumigant 1,3-dichloropropene and its related compounds in the groundwater – Greece 2005-2007: monitoring networks design and sampling campaign.**

#### INVITED TALKS AND CONFERENCE PRESENTATIONS

• Dates

**2021**

European Geosciences Union (EGU) General Assembly, Vienna, Austria

*Research Topic:*

Union Symposium 'Faults, Rivers and Topography: in memory of Patience A. Cowie'

*Presentation Title:*

*From surface processes modelling to high-resolution drilling record: resolving key controls on sediment production and stratigraphic development in the Corinth Rift, Greece*

• Dates

**2021**

Geological Society of Greece - Hellenic Committee for Geomorphology and Environment

*Research Topic:*

Women in Geomorphology: a Mediterranean perspective

*Presentation Title:*

*High resolution records of interacting tectonics, climate and sedimentation from the Corinth Rift, Greece*

• Dates

**2020**

American Geophysical Union (AGU) fall meeting, San Francisco, USA

*Presentation Title:*

*Drilling the Corinth active rift, Greece: High resolution records of interacting tectonics, climate and sedimentation during rift evolution*

• Dates

**2019**

American Geophysical Union (AGU) fall meeting, San Francisco, USA

*Research Topic:*

Advances in Tectonic Geomorphology: The Interplay of Tectonics, Climate, and Surface Processes

*Presentation Title:*

*Contrasting geomorphic response to normal fault growth during single and multi-phase extension in active rifts*

• Dates

**2018**

Colloquium on Norwegian Research Activities within the International Ocean Discovery Program (IODP)

*Presentation Title:*

*Preliminary results from IODP Expedition 381: Development of the active Corinth Rift, Greece*

• Dates

**2018**

European Geosciences Union (EGU) General Assembly, Vienna, Austria

*Research Topic:*

Evolution and architecture of rifts and passive margins: from mantle dynamics to surface processes

*Presentation Title:*

*Evaluating key controls on sediment flux to the Gulf of Corinth over the last 130 kyrs using a forward modelling approach*

• Dates

**2017**

American Geophysical Union (AGU) fall meeting, New Orleans, USA

*Research Topic:*

Mountain Peak to Seafloor: Processes, Interactions, and Feedbacks Between Sediment Supply and Landscape Evolution

<i>Presentation Title:</i>	<i>Evaluating key controls on sediment flux to the Gulf of Corinth over the last 130 kyrs using a forward modelling approach</i>
• <i>Dates</i>	<b>2016</b> Keynote lecturer at the 18 <sup>th</sup> Joint Geomorphological Meeting of the International Association of Geomorphologists (IAG), Chambéry, France
<i>Research Topic:</i>	Source to sink: from erosion to sedimentary archives
<i>Presentation Title:</i>	<i>A source to sink analysis from the Sperchios active rift</i>
• <i>Dates</i>	<b>2016</b> American Association of Petroleum Geologists (AAPG) Annual Convention, Calgary, Canada
<i>Research Topic:</i>	Siliclastics / Source-to-sink
<i>Presentation Title:</i>	Controls on sediment distribution from source-to-sink in an active extensional setting: the Sperchios rift, central Greece
• <i>Dates</i>	<b>2016</b> European Geosciences Union (EGU) General Assembly, Vienna, Austria
<i>Research Topic:</i>	Interactions between tectonics and surface processes from mountain belts to basins
<i>Presentation Title:</i>	<i>A numerical modelling approach to investigate the surface processes response to normal fault growth in multi-rift settings</i>
• <i>Dates</i>	<b>2015</b> European Geosciences Union (EGU) General Assembly, Vienna, Austria
<i>Research Topic:</i>	Interactions between tectonics and surface processes from mountain belts to basins
<i>Presentation Title:</i>	<i>Surface processes in an active rift setting: a source to sink approach from the Sperchios delta, Central Greece</i>
• <i>Dates</i>	<b>2014</b> Topo-Europe, Barcelona, Spain
<i>Research topic:</i>	Interplay between surface, lithospheric, and mantle processes
<i>Presentation Title:</i>	<i>Controls on deltaic sedimentation in an active rift setting: a source to sink approach from the Sperchios delta, central Greece</i>
• <i>Dates</i>	<b>2014</b> 10 <sup>th</sup> International Congress of the Hellenic Geographical Society, Greece.
<i>Research Topic:</i>	Geomorphology
<i>Presentation Title:</i>	<i>Holocene depositional history of the Sperchios delta, central Greece</i>
• <i>Dates</i>	<b>2011</b> Key lecturer at the 15 <sup>th</sup> Joint Geomorphological Meeting of the International Association of Geomorphologists (IAG)
<i>Presentation Title:</i>	<i>Sedimentation processes and numerical modelling in the Sperchios delta (Greece)</i>

#### SCIENTIFIC WORKSHOPS

• <i>Dates</i>	<b>04/2020 - 05/2020</b> Python seminar series – Aristotle University of Thessaloniki
• <i>Dates</i>	<b>2012</b> Processing and analyzing geospatial imagery - ENVI
• <i>Dates</i>	<b>2011</b> Participant at the Summer Institute for Earth - Surface Dynamics workshop, organized by the National Center on Earth – surface Dynamics (NCED), St. Anthony Falls Lab.-University of Minnesota (selected by competitive application)
<i>Research topic:</i>	Coastal Processes and the Dynamics of Deltaic Systems
• <i>Dates</i>	<b>2008</b> Methodological Approaches in Geoarchaeology, organized by the International Association of Geomorphologists (IAG), Porto Heli, Greece
• <i>Dates</i>	<b>2003</b> GIS /ArcInfo – ArcView, organized by ESRI, Thessaloniki, Greece

#### PROFESSIONAL ORGANIZATIONS

- European Geoscience Union (EGU)
- American Geophysical Union (AGU)
- American Association of Petroleum Geology (AAPG)
- Society for Sedimentary Geology (SEPM)

### III. PUBLICATIONS

#### SELECTED PUBLICATIONS

- **2017. Pechlivanidou, S.,** Cowie P., Hannisdal B., Whittaker, A., Gawthorpe, R., Pennos, Ch. And Sannes-Riiser, O. Source-to-sink analysis in an active extensional setting: Holocene erosion and deposition in the Sperchios rift, central Greece. *Basin Research*, 30, 522-543, DOI: <https://doi.org/10.1111/bre.12263>. [\[PDF\]](#)
- **2019. Pechlivanidou, S.,** Cowie P., Duclaux, G., Salles, T., Nixon, C. and Gawthorpe, R. Tipping the balance: Shifts in sediment production in active rift settings. *Geology*, v. 47, p. 259–262, DOI:10.1130/G45589.1 [\[PDF\]](#)
- **2019.** McNeill, L., Shillington, D., Carter, G., Everest, J., Gawthorpe, R., Miller, C., Phillips, M., Collier, R.E.L., Cvetkoska, A., Gelder, G., Ferreira, P., Doan, M-L., Ford, M., Geraga, M., Gillespie, J., Hemelsdael, R., Herrero-Bervera, E., Ismaiel, M., Janikian, L., Kouli, K., Ber, E., Li, Sh., Maffione, M., Mahoney, C., Machlus, M., Michas, G., Nixon, C., Oflaz, S., Omale, A., Panagiotopoulos, K., **Pechlivanidou, S.,** Sauer, S., Seguin, J., Sergiou, S., Zhakarova, N. and Green, S. High-resolution record reveals climate-driven environmental and sedimentary changes in an active rift. *Scientific Reports*, DOI: 10.1038/s41598-019-40022-w [\[PDF\]](#)
- **2019.** Pennos, Ch., Lauritzen, S-E., Vouvalidis, K., Cowie, P., **Pechlivanidou, S.,** Styllas, M., Gkarlaouni, Ch., Tsourlos, P. and Mouratidis, A. From subsurface to surface: a multidisciplinary approach to decoding uplift histories in tectonically-active karst landscapes. *Earth Surface Processes and Landforms*, DOI: 10.1002/esp.4605 [\[PDF\]](#)
- **2021.** Pennos, Ch., **Pechlivanidou, S.,** Aidona, E., Bourliva, A., Lauritzen, S-E., Scholger, R., Kantiranis, N. Decoding short-term climatic variations from cave sediments over the Mid-Holocene: Implications to human occupation in the Katarraktes Cave System, Northern Greece. *Zeitschrift für Geomorphologie, Special Issue, vol. 63/1, 67–80*, DOI: 10.1127/zfg/2021/0680 [\[PDF\]](#)
- **2021.** De Gelder, G., Doan, M-L., Beck, Ch., Carlut, J., Seibert, Ch., Feuillet, N., Carter, G.D.O., **Pechlivanidou, S.,** Gawthorpe, R.L. Multi-scale and multi-parametric analysis of Late Quaternary event deposits within the active Corinth Rift (Greece). *Sedimentology*. DOI: 10.1111/sed.12964 [\[PDF\]](#)
- **2021.** Mousouliotis, A.G., **Pechlivanidou, S.,** Albanakis, K., Georgakopoulos, A., B. Medvedev, B. Deciphering salt tectonic deformation patterns in Eastern Mediterranean: insights from the Messinian Evaporite at the eastern part of the Herodotus Basin. *Marine and Petroleum Geology*, 133. DOI: 10.1016/j.marpetgeo.2021.105317 [\[PDF\]](#)
- **2022. Pechlivanidou, S.,** Geurts, A., Duclaux, G., Gawthorpe, R., Pennos, Ch., Finch., E. Contrasting geomorphic and stratigraphic responses to normal fault development during single and multi-phase rifting. *Frontiers in Earth Science - Structural Geology and Tectonics*. Special Issue on *Links Between Tectonics, Fault Evolution and Surface Processes in Extensional Systems*. DOI: 10.3389/feart.2021.748276 [\[PDF\]](#)
- **2022.** Gawthorpe, R.L., Fabregas, N., **Pechlivanidou, S.,** Ford, M., Collier, R.E.L., Carter, G.D.O., McNeill, L.C., Shillington, D.J. Late Quaternary mud-dominated, basin-floor sedimentation of the Gulf of Corinth, Greece: Implications for deep-water depositional processes and controls on syn-rift sedimentation. *Basin Research*, 1-34. DOI: 10.1111/bre.12671
- **2022.** Kang, W., Li, S., Gawthorpe, R.L., Ford, M., Collier, R.E.L., Yu, X., Janikian, L., Nixon, C.W., Hemelsdael, R., Sergiou, S., Gillespie, J., **Pechlivanidou, S.,** De Gelder, G. Grain-Size Analysis of the Late Pleistocene Sediments in the Corinth Rift: Insights into Strait Influenced Hydrodynamics and Provenance of an Active Rift Basin. In *Straits and Seaways: controls, processes and implications in modern and ancient systems*. v. 523, Geological Society of London Special Publication. DOI: 10.1144/SP523-2022-166