

## CASP Research Award for Geological Fieldwork- 2017 Award Winner

**Applicant:** Mr. Lajos Ádám Csicsek, Imperial College.  
**Project title:** The effects of salt tectonics in the evolution of a fold and thrust belt.  
**Award:** £1,060.

**Scientific question and rationale:** In the past decades, our knowledge about salt tectonics has significant advances due to the improvements of seismic technologies, analogue modelling and hydrocarbon exploration in the Gulf of Mexico and West Africa. The succession of the well-known fold and thrust belt of SE France comprise Upper Triassic evaporites. The incompetent variegated gypsiferous shales has significant impact during the Alpine convergence but the role of the salt related structures in the preceding passive margin evolution is largely unclear. What kind of salt-related structures formed during the structural evolution of the Subalpine fold and thrust belt and how can we identify them? Where would we looking for the salt-related structures and what is the effects of the salt tectonics in the evolution of the fold and thrust belt?

### **Specific Objectives and Deliverables:**

The summary of the temporal evolution of the salt tectonics in the Subalpine chains of SE France. The effects of the salt tectonics in the evolution of the fold and thrust belt also will be clarified. The project will provide new information about the impacts of salt tectonics on petroleum systems. The visualisation of the salt movement, the new insights on the salt-related structures and the modelling results could be helpful for the hydrocarbon exploration and exploitation in “challenging environments” (e.g. better understanding of the sub-salt traps and its temporal evolution based on field evidences).

### **Proposed Work Plan:**

For the 2017 summer field period (fieldwork with the supervisors of the project):

- review of the results of the former mapping projects
- identify the key sections and major points (areas, outcrops, road-cuts, quarries) where we could start the detailed mapping project
- visit the key sections and detailed geological mapping in the Subalpine chains of SE France

After the start of the project (1 October 2017, for the first year of the project):

- review of the results of the former mapping projects
- gathering subsurface data set
- interpretation of the results of the geological mapping
- structural and paleostress analysis
- cross section building
- comparison our results and the identified salt related structures with the analogues from passive margins
- improve my skills in salt tectonics and in structural visualization in three dimension
- to attend on workshops and academic conferences

### **Proposed Expenditure including details of any other sources of funding:**

Air fares to Marseille ca £200. Car hire £360 for the 2017 summer field period. Accommodation £500 for the 2017 summer field period.

I have an offer for a PhD studentship in the Department of Earth Science and & Engineering at the Imperial College London, starting 1 October 2017. The Studentship will be funded by the NERC CDT in Oil & Gas.

The Studentship includes home tuition fees, tax-free stipend and research training support grant.