

Development of innovative and soft competences of engineering students by challenge participations



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The poster shows two best practices to involve international challenges in master's level engineering training.

Industry-driven requirements for engineering courses in the raw materials industry: train "T-shaped professionals".

Has boundary crossing competences	Boundary crossing competences:	Boundary crossing competences:
Deep knowledge and skills in professional disciplines	<ul style="list-style-type: none"> • Innovative thinking • Critical thinking • Work in teams (also online) • Resolve complex problems • Manage complex datasets • Organize workflows • Keep the deadlines • Good presentation skills 	<ul style="list-style-type: none"> • Difficult to develop in classes • One solution: encourage students to participate in international challenges! • Two examples by the University of Miskolc, Faculty of Earth Science and Engineering • In cooperation with the • EAGE student chapter • Natural Resources Exploration and Utilization College for Advanced Studies (TEKH)

Example 1: Laurie Dake Challenge

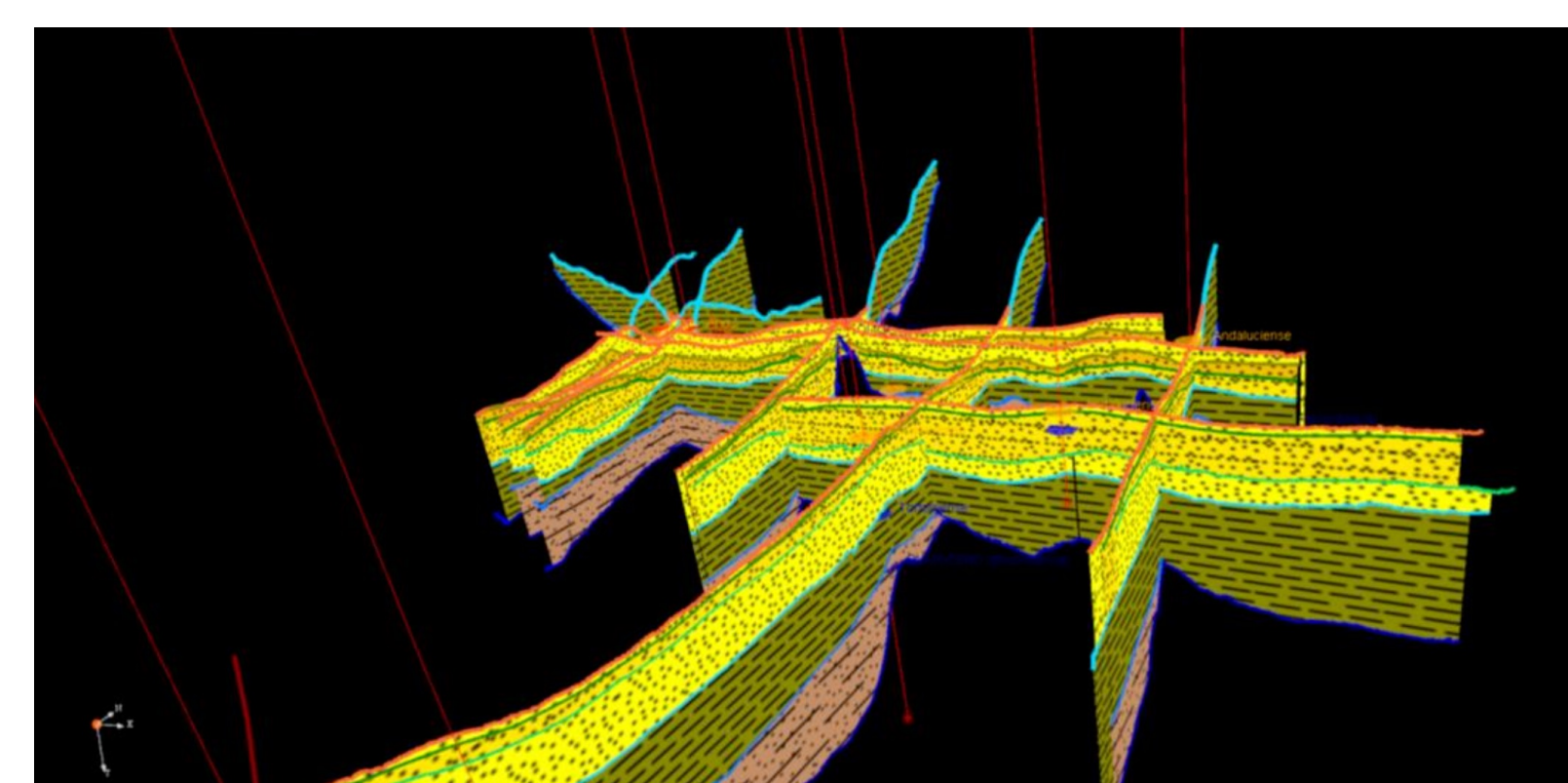


The Laurie Dake Challenge provided by the EAGE (European Association of Geoscientists and Engineers) which is a cross-disciplinary geoscience and engineering challenge to analyse and propose a field development plan for a discovered hydrocarbon resource. Teams are required to submit the field plan and development, based on real hydrocarbon field datasets.

The EAGE, European Association of Geoscientists and Engineers is an association to promote the development and application of geosciences and related engineering subjects, as well as innovation and technical progress and to foster the communication and cooperation.

Teams in the Laurie Dake Challenge had to complete a complex field development plan of a hydrocarbon field in the Gulf of Cadiz, Spain.

The team of the University of Miskolc – five SH students from the Petroleum Geoengineering, Petroleum Engineering and Earth Science Engineering MSc programs – has been **selected to the global best four teams** and they travel to the final presentation in early June to Madrid for the EAGE General Meeting.

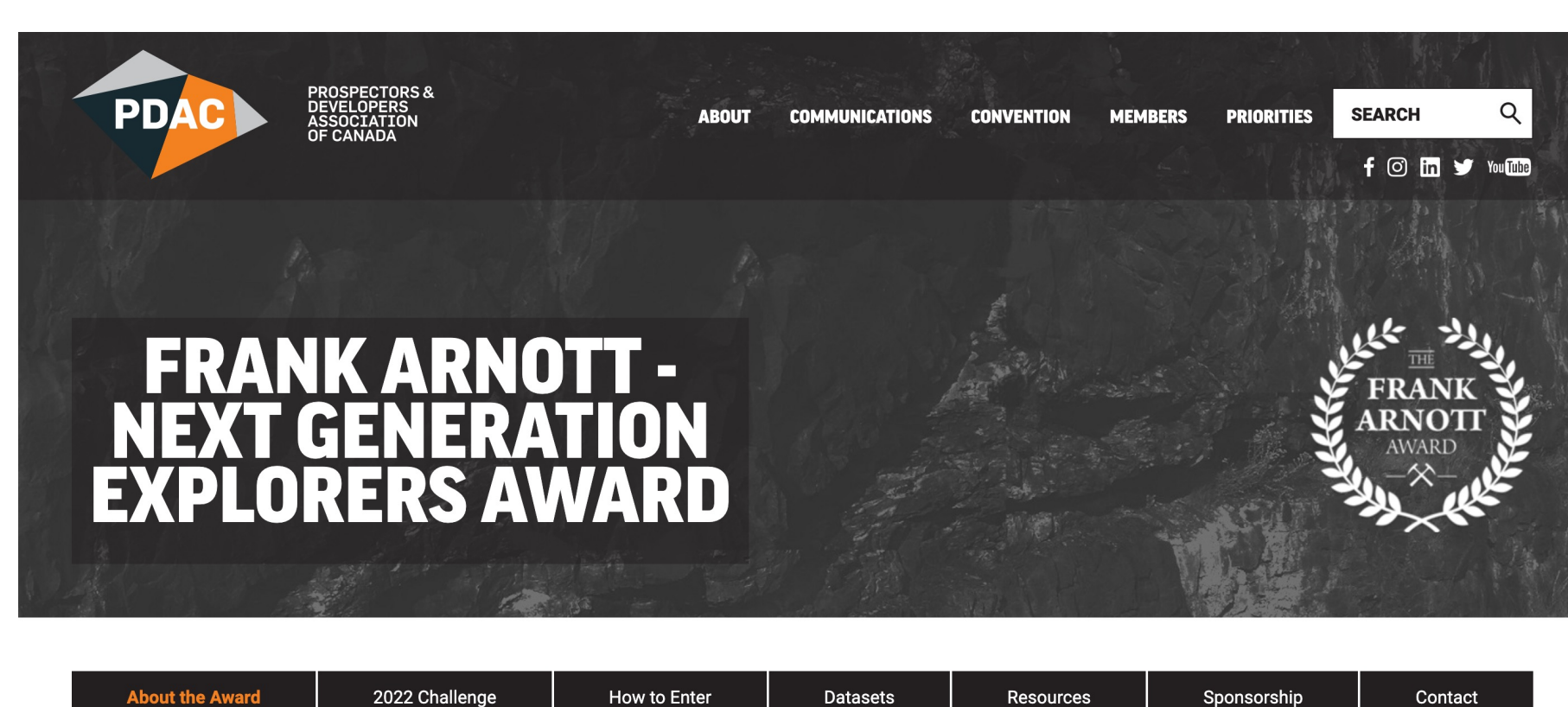


Laurie Dake Challenge 2021

The prestigious Laurie Dake Challenge is back for its 10th edition. The famed student team challenge, started in 2011, requires a multi-disciplinary group of students to work towards a fully integrated field development plan. This year we will be teaming up with Wintershall DEA, which will provide the dataset for the 2021 challenge. As in previous editions, we will be looking for a diverse set of teams to participate - both in relation to academic level as well as scientific focus. Teams can only have one PhD student per group in addition to MSc and BSc students. Each team comprises a maximum of five members, so make sure to get a broad range of topics covered!

This year, we're asking teams to submit a motivation letter (max 4 pages) on how they will set themselves up for success. Do you have a great multi-disciplinary team, possess great project management skills, or are able to communicate your results like a champ? We want to find out in your team's motivation letter! The best teams will receive the full dataset to impress the jury with their proposal for the field development. Since the inception of the competition we've had teams from around the globe come in first place.

Example 2: PDAC Next Generation Explorers Award



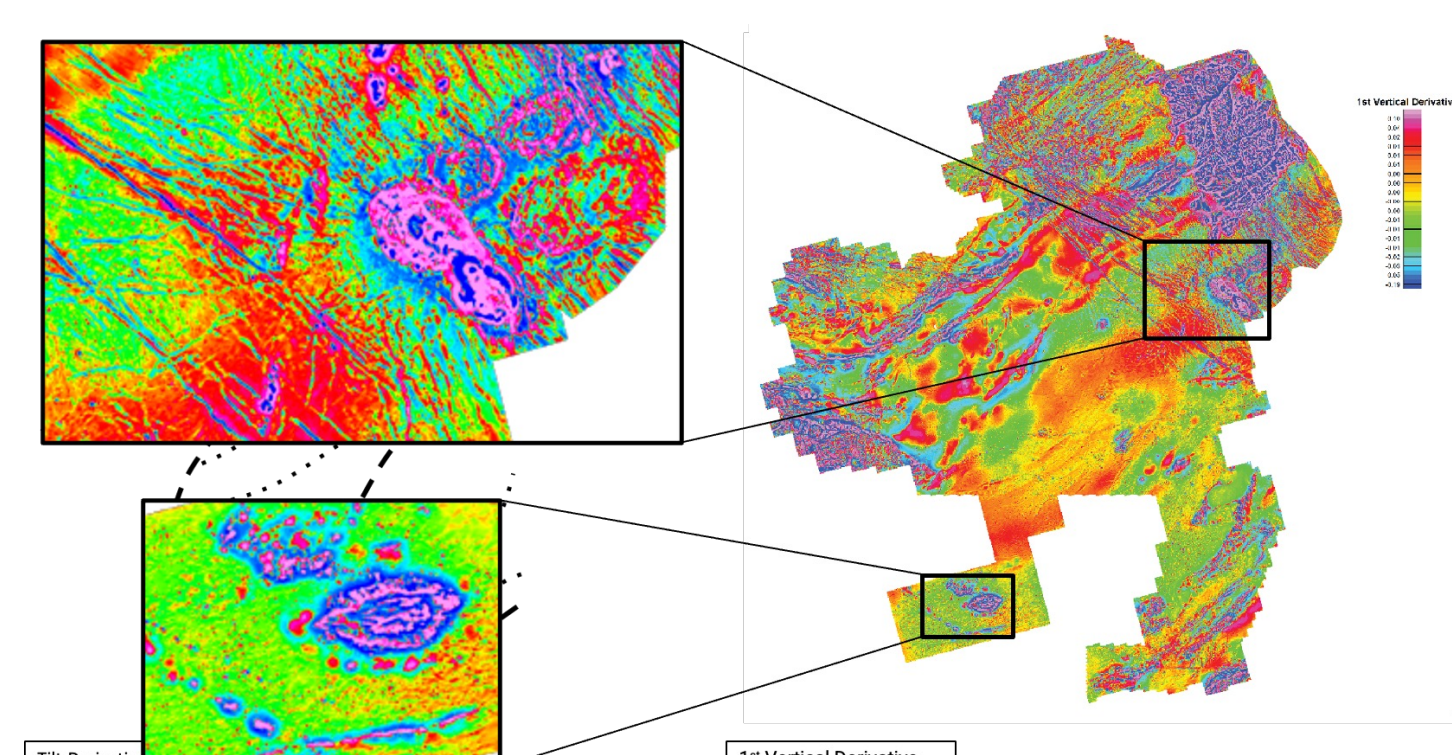
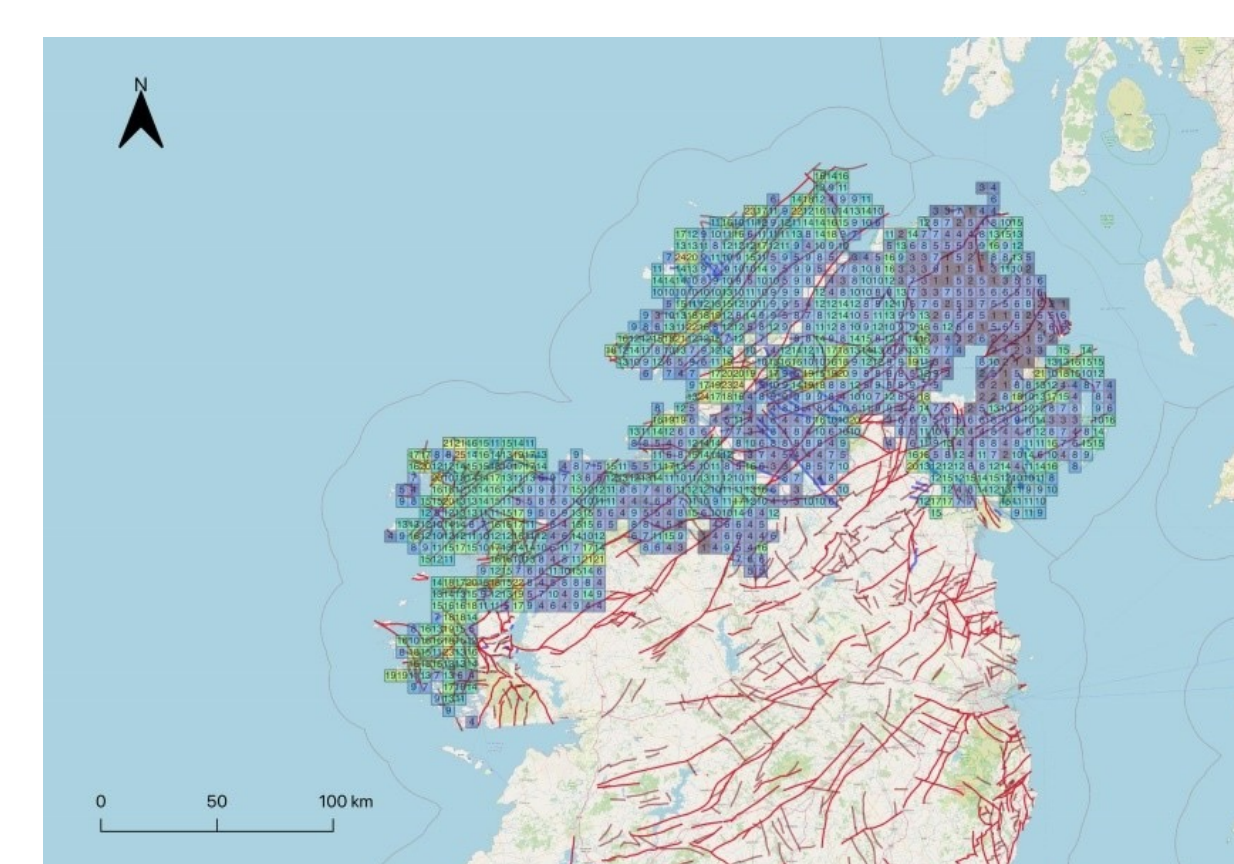
A regional international team has participated in 2021 in the Next Generation Explorers Award, coordinated by the PDAC (Prospectors and Developers Association of Canada), a worldwide leading association for exploration geologists.

The task here is to select a dataset from the offered ones and do its complex evaluation from ore geology prospecting point of view.

Our students participated in a joint team together with students from the Babes-Bolyai University, Cluj and students from the University of Zagreb. The database selected was the complex geophysical and geochemical dataset of Ireland and Northern-Ireland (TELLUS).

The challenge in this form needed the coordination of the teamwork of students physically not meeting each other during the whole preparation period.

After submitting the presentation for the 2021 challenge, leaders of the team decided to continue the work in the same consortium and they have already started the preparation for the 2022 NGEA challenge.



Team and contributions

Geology	Geophysics	Geochemistry	Mentors
<ul style="list-style-type: none"> • Ivan Vajović • Josp Vlnok 	<ul style="list-style-type: none"> • Agra Adiga • Khouloud Jalel • Belay, Mohammed Ali 	<ul style="list-style-type: none"> • Dávid Csoma • Árpád Adámcsák • Gabriella Bani • Dániel Kovács • Alfred Boticzás-Gál 	<ul style="list-style-type: none"> • János Földessy • Agnes Gál (photo not provided) • Ferenc Mádai • István Márton • Ernő Takács



A diverse team representing East and Southeast Europe (ESE), with geoscientist MSc students currently enrolled at University of Miskolc (Hungary), University of Zagreb (Croatia), Babeş-Bolyai University (Romania), Editris Loránd University (Hungary), Lund University (Sweden), University of Liège (Belgium)