Motivation
In most university geoscience curricula, virtual field work and tectonics (SGT) form a core part. Our understanding of SGT has evolved over the years, and industrial applications have changed with the emergence of novel tools and data, and as a consequence we are continuously working on developing our teaching to reflect these advances. Such a development is encouraged by new teaching approaches, technologies and methods. At the same time, our students, and the ways in which they learn, are changing, and classical ex cathedra teaching often fails to excite them.

The workshop brought together experienced university-level SGT educators from three continents in order to learn and discuss about strengths and weaknesses of current SGT curricula in Europe and beyond. The goal of our meeting was to outline a SGT teaching vision for the next decade. We learned about the educational demands from industry and research and discussed major educational, technical and financial application and implementation. We debated a range of efforts to establish a community-supported teaching platform.

Progress through technology?
Several experts presented innovative teaching approaches and tools, including virtual landscapes, augmented and virtual reality, digital microscopy and others. The pros and cons of these were explored. The Covid-19 crisis has rendered this discussion more urgent and, since the workshop, significant web-based resources have become available. The long-term effects of classical teaching retain to be assessed, but the developments have definitely been accelerated.

Virtual reality
Virtual reality provides a range of opportunities, but the necessary data that need to be collected are best confined in the field. The ability to design and test VR models in a laboratory setting is limited, as they cannot replace the full complexity of nature.

Field Work and excursions in geology degree.

What opportunities are there?

- **Shared resources for field work**
  - Cased out most of the locations around Europe/World, organized by key structural geologists.
  - Sufficiently rich to ensure the students’ education.

- **Virtual Reality (VR)**
  - Extensive opportunities for fieldwork (in some cases used in real fieldwork)
  - High accuracy of data acquisition.
  - The Covid-19 pandemic may provide new opportunities for data acquisition.

- **Unmanned Aerial Vehicles - UAVs**
  -shortcode for drones.
  - Fast and efficient method to capture high-resolution photographic data; straightforward generation of structure from motion models; digital preservation of short-lived outcrops; sharing of virtual models.

- **Virtual Field Training (V. Houghton)**
  - Integrated new sensors for improved accuracy.

- **Industry perspective**
  - Structural geologists contribute to our understanding of natural resources and geothermal.
  - The complexity of modern industry means that the necessary data need to be collected, and it is best confined in the field.

- **What is field work important?**
  - **Virtual reality**
    - Extensive opportunities for fieldwork (in some cases used in real fieldwork)
  - **Industry perspective**
    - Significant potential

What threats face field teaching?

- **Virtual Reality (VR)**
  - Inability to simulate full-scale models of the real world.
  - Hardware-intensive.

- **Unmanned Aerial Vehicles - UAVs**
  - Legal restrictions on flying drones.
  - Run-time and computational overhead of high-resolution 3D models.

- **Virtual Field Training (V. Houghton)**
  - Integrates new sensors for improved accuracy.

- **Industry perspective**
  - Significant potential

What opportunities are there?

- **Virtual Reality (VR)**
  - Extensive opportunities for fieldwork (in some cases used in real fieldwork)
  - High accuracy of data acquisition.
  - The Covid-19 pandemic may provide new opportunities for data acquisition.

- **Unmanned Aerial Vehicles - UAVs**
  - Fast and efficient method to capture high-resolution photographic data; straightforward generation of structure from motion models; digital preservation of short-lived outcrops; sharing of virtual outcrops.

- **Virtual Field Training (V. Houghton)**
  - Integrated new sensors for improved accuracy.

- **Industry perspective**
  - Significant potential

What threats face field teaching?

- **Virtual Reality (VR)**
  - Inability to simulate full-scale models of the real world.
  - Hardware-intensive.

- **Unmanned Aerial Vehicles - UAVs**
  - Legal restrictions on flying drones.
  - Run-time and computational overhead of high-resolution 3D models.

- **Virtual Field Training (V. Houghton)**
  - Integrates new sensors for improved accuracy.

- **Industry perspective**
  - Significant potential

What opportunities are there?

- **Virtual Reality (VR)**
  - Extensive opportunities for fieldwork (in some cases used in real fieldwork)
  - High accuracy of data acquisition.
  - The Covid-19 pandemic may provide new opportunities for data acquisition.

- **Unmanned Aerial Vehicles - UAVs**
  - Fast and efficient method to capture high-resolution photographic data; straightforward generation of structure from motion models; digital preservation of short-lived outcrops; sharing of virtual outcrops.

- **Virtual Field Training (V. Houghton)**
  - Integrated new sensors for improved accuracy.

- **Industry perspective**
  - Significant potential

What threats face field teaching?

- **Virtual Reality (VR)**
  - Inability to simulate full-scale models of the real world.
  - Hardware-intensive.

- **Unmanned Aerial Vehicles - UAVs**
  - Legal restrictions on flying drones.
  - Run-time and computational overhead of high-resolution 3D models.

- **Virtual Field Training (V. Houghton)**
  - Integrates new sensors for improved accuracy.

- **Industry perspective**
  - Significant potential