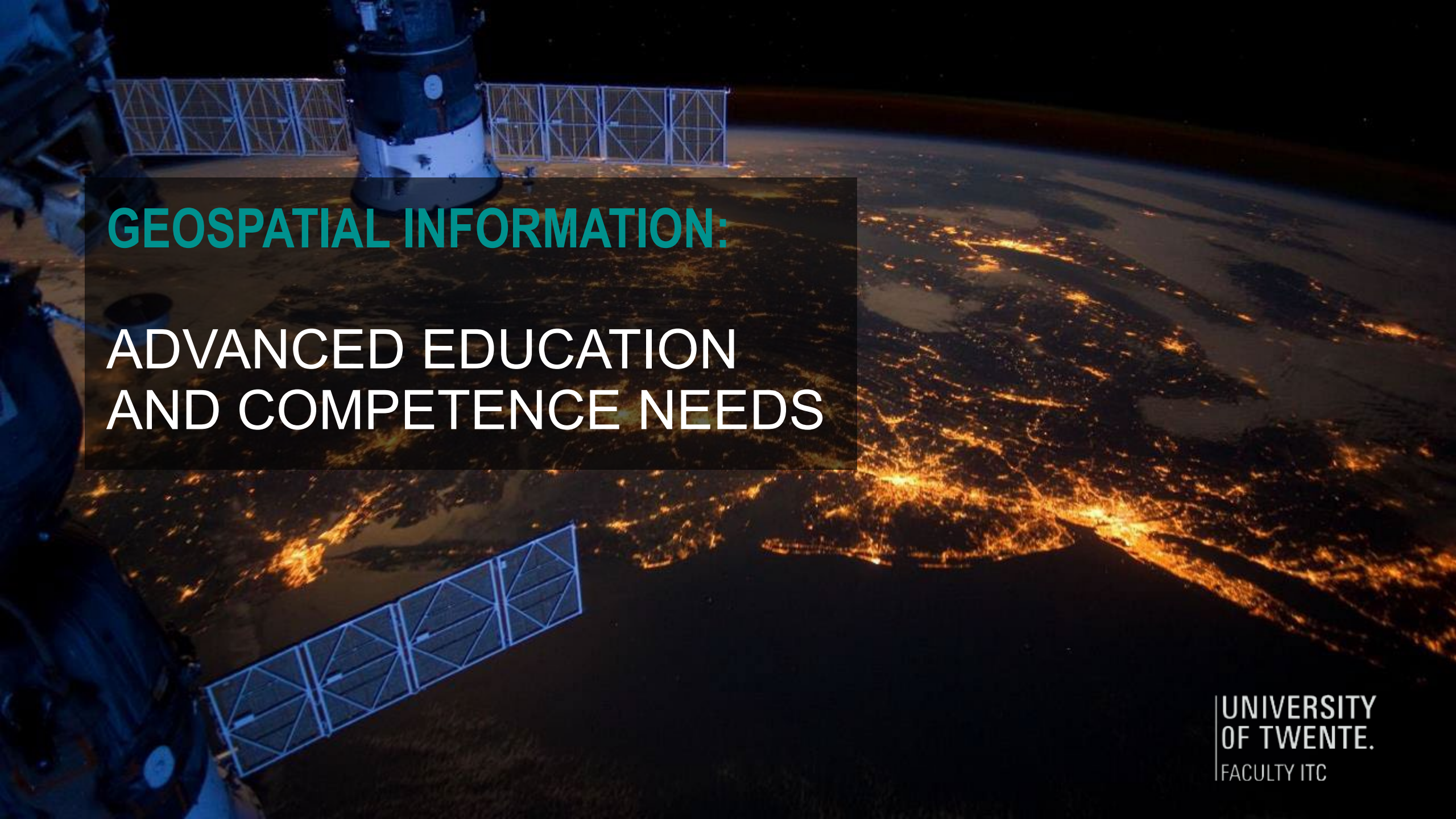

GEOSPATIAL INFORMATION:

ADVANCED EDUCATION AND COMPETENCE NEEDS

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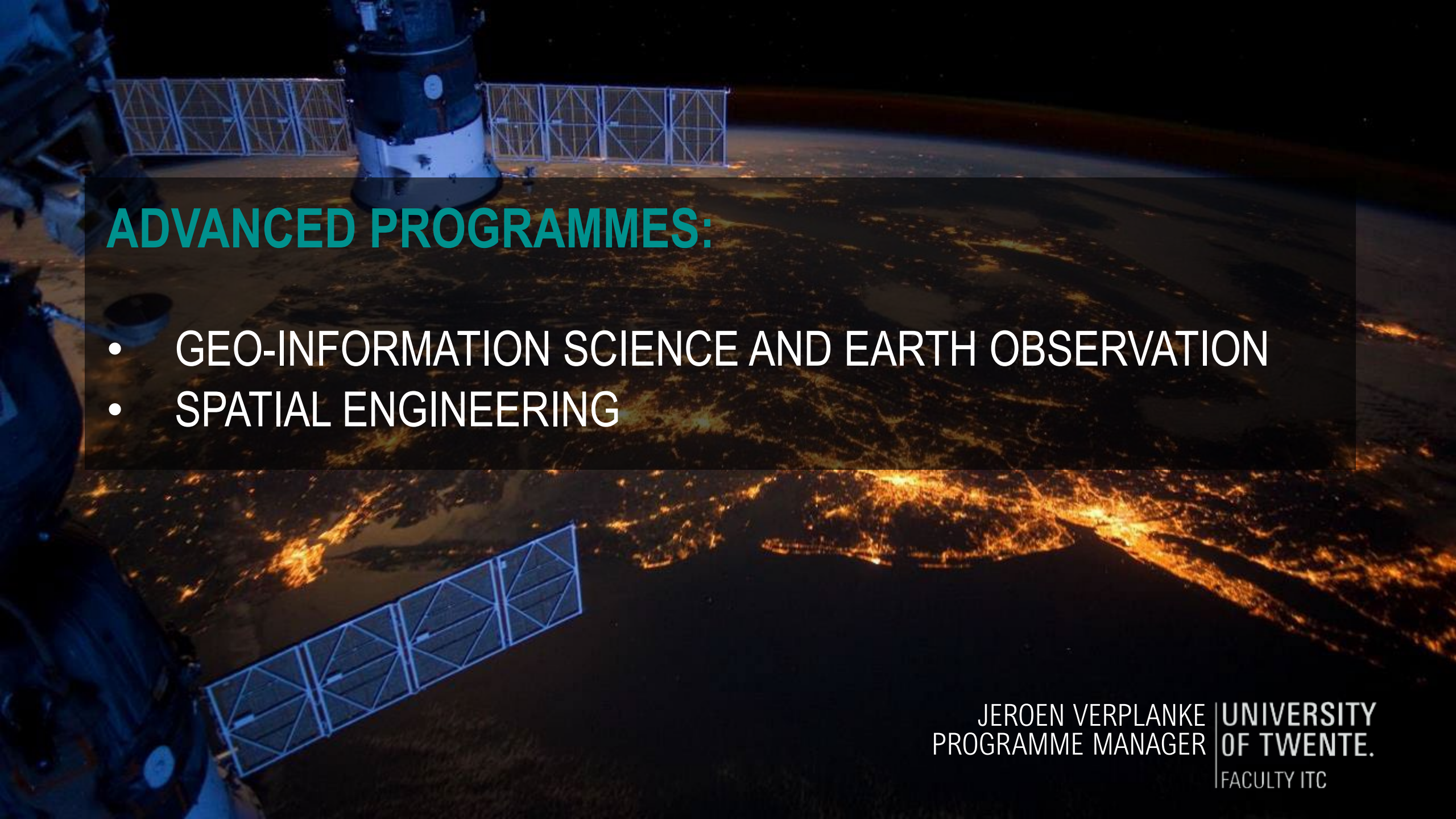

ADVANCED PROGRAMMES:

- GEO-INFORMATION SCIENCE AND EARTH OBSERVATION
- SPATIAL ENGINEERING

JEROEN VERPLANKE
PROGRAMME MANAGER
UNIVERSITY OF TWENTE.
FACULTY ITC

IN THIS PRESENTATION

1. About ITC
2. Two advanced Programmes
3. Competences taught
4. Future Needs

WHAT'S ITC ALL ABOUT?

GEO-INFORMATION MANAGEMENT, WORLDWIDE AND INNOVATIVE

- One of the world's foremost education and research establishments in geo-information science and earth observation
- A wide range of disciplines and activities in this field
- Solving real world problems
- Multicultural environment with staff and students from over 190 countries
- Contribute to capacity building in developing countries and emerging economies

TWO MASTER'S PROGRAMMES

- Global challenges, from climate change to resource depletion and pandemic diseases, increase the demand for professionals who have the ability, attitudes and skills to design solutions for these challenges. Our education focuses firstly on addressing these global problems through 2-year Master programmes, taught fully in English.

Geo-information Science and Earth Observation

- Dedicated to understanding the earth's systems from a geographic and spatial perspective and turning the increasing volume of produced and available 'big spatial data' into good use.

Spatial Engineering

- Spatial engineering focuses on major spatial problems with a strong social context: disasters, food water security, consequences of overpopulation. A spatial engineer helps to tame a problem, by generating knowledge and creating consensus

TWO MASTER'S PROGRAMMES

Geo-information Science and Earth Observation

- Within the domains of data, people and technology, learn to use a geo-spatial problem-solving framework, ensuring that cause-effect relations of a solution can be measured, modelled and quantified according to the full extent of their geographical impact.
- Choice of 7 disciplinary specializations, Including GIM Land Administration
- Common elements to work on multi disciplinary problem solving
- Individual MSc research project

Spatial Engineering

- Intrinsically international and multidisciplinary programme. For (wicked) problem solving.
- Three case study projects of increased integration of disciplines: 10-week periods to develop sustainable interventions to help solve a problem. Strong focus on stakeholders in Planning & Governance
- International module, visiting organizations in Europe (and virtual visits globally)
- Individual MSc research project
- (international) internship.

TWO MASTER'S PROGRAMMES: COMPETENCES TAUGHT

Geo-information Science and Earth Observation

- Can unravel geospatial processes and innovate solutions for local and global problems as an applied scientist or a geo-information consultant.
- Competency to work at the nexus between scientists, technical specialists and decision-makers.
- Equipped to translate policy decisions into technical requirements and vice versa
- Geo-information specialist

Spatial Engineering

- Multi disciplinary (also in background):
  - Geo-technical; processes in system earth
  - Spatial information sciences; data-management, programming, visualizing
  - spatial planning for governance; multi level stakeholder disagreements
- Experience in international projects and teamwork

English language - communication skills;	Research skills - academic level;	Entrepreneurial and proactive

LEARNING BY DOING:

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GEO-SCIENCE LAB:

Unique Research Facility:
houses a combination of

- spectroscopy
- geophysics
- chemistry
- field equipment
- drones with different sensors to support in-depth research of spatial sciences.

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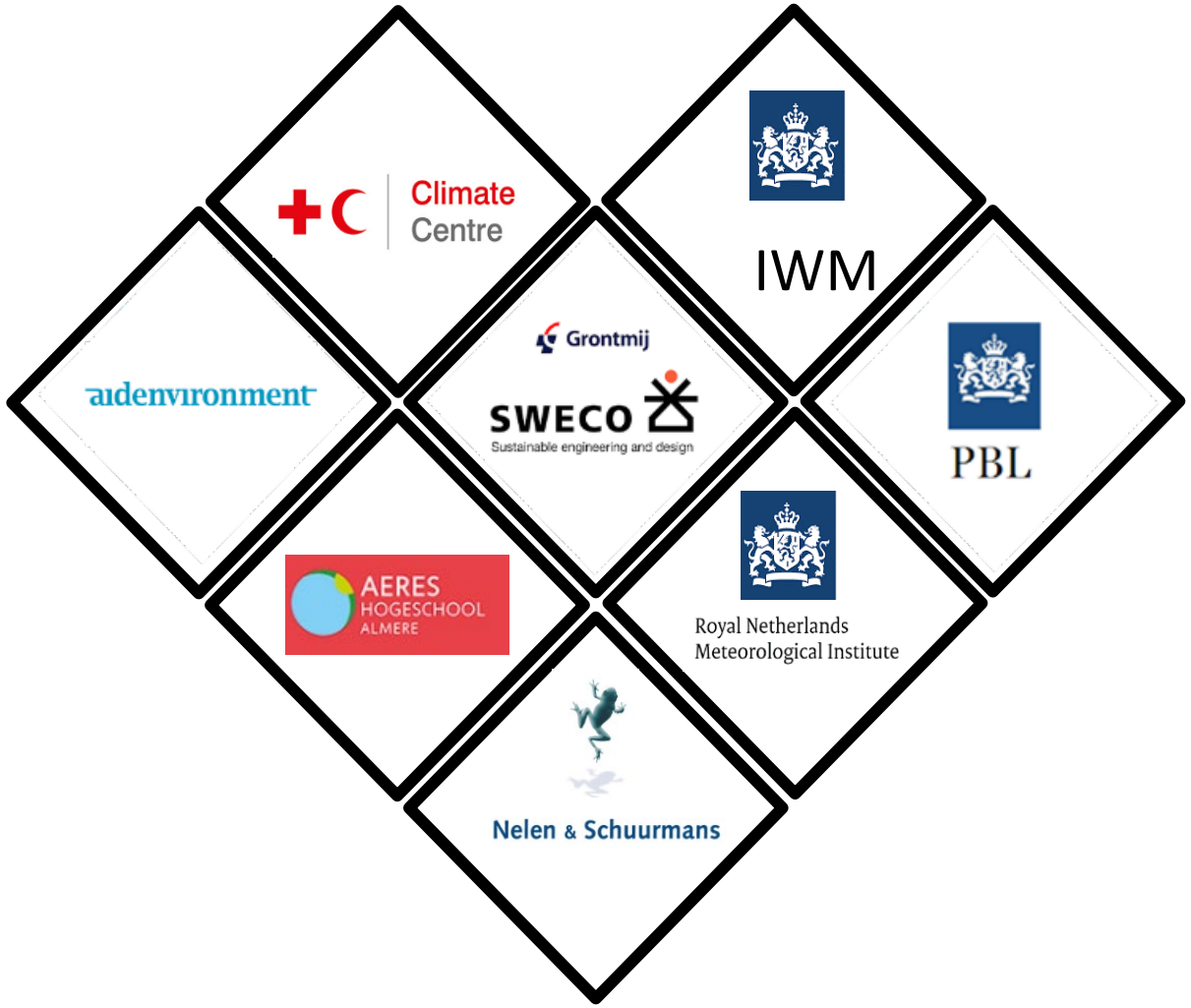
NEW COMPETENCES DEMANDED BY INDUSTRY

TO BE OR EXCEL AS A:

- Project manager
- Risk manager
- Scientific researcher
- Consultant in:
  - Hydrology
  - Sustainable development
  - Natural resources management
  - Disaster risk
  - Food & water security



NEW COMPETENCES DEMANDED BY INDUSTRY

"There is business in both GIS and EO, and we need to equip our students for it."

- Handle big data and competences in cloud computing.
- Focus on Python & R, partly because they are relatively easy to learn.
- The use of QGIS is preferred as it is open source and programmes are not about learning software.
- '**Soft skills**' are almost as important next to technical skills: leadership, communication and management in GEO: teach 'Geospatial leadership.
- Project management skills are needed to:
  - close the gap between education and business, or
  - (social) entrepreneurship: the use of GIS and EO from an economic and social benefit point of view, taking into account user needs.

GEOSPATIAL INFORMATION:

ADVANCED EDUCATION AND COMPETENCE NEEDS

Thank you for your attention. Are there any questions?

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