



suma

Master Programme on
Sustainable Materials



RawMaterials
ACADEMY

Funded by the
European Union



Master in Sustainable Materials

EIT-LABELLED

MASTER'S PROGRAMME

Introduction



Our modern lifestyle relies on raw materials. From the iron and steel of our railway infrastructure to the gold and silver in the circuitry of smartphones: raw materials are everywhere. Even the transition to a climate neutral future requires cobalt for electric vehicles, lithium for rechargeable batteries, silicon for photovoltaics and solar panels, and rare earth elements for wind turbines that generate renewable energy.

As the world grows smaller and more hyper-connected, the impact of society on the Earth has never been more visible. It is now clear that we need to shift to a circular economy in order to responsibly use the Earth's finite resources. But what can just one individual do to help? More than you think! Real change requires courage, innovative thinking, and collective action – the same skill set that EIT RawMaterials Academy looks for in prospective students. Are you ready to mine your raw talent, help shape a more circular, green economy, and create sustainable solutions for tomorrow?



What do we offer students?

EIT RawMaterials Academy offers students a unique opportunity to learn in a dynamic environment, focusing on real-life challenges. Awarded by the EIT (European Institute of Innovation and Technology), a body of the European Union, the EIT Label is a certificate of quality that is granted only to excellent educational programmes at the master's and doctoral level.

As a student of an EIT-Labelled programme from EIT RawMaterials Academy, you'll be part of the largest European raw materials network with more than 120 core and associate partners and 180 project partners, including higher education professionals, researchers, and industry experts from over 20 European countries. As an EIT Label student, you will be welcomed into this network and will champion and contribute to the EIT RawMaterials goals of finding new, innovative solutions to secure the sustainable supply of raw materials across the value chain: from explo-

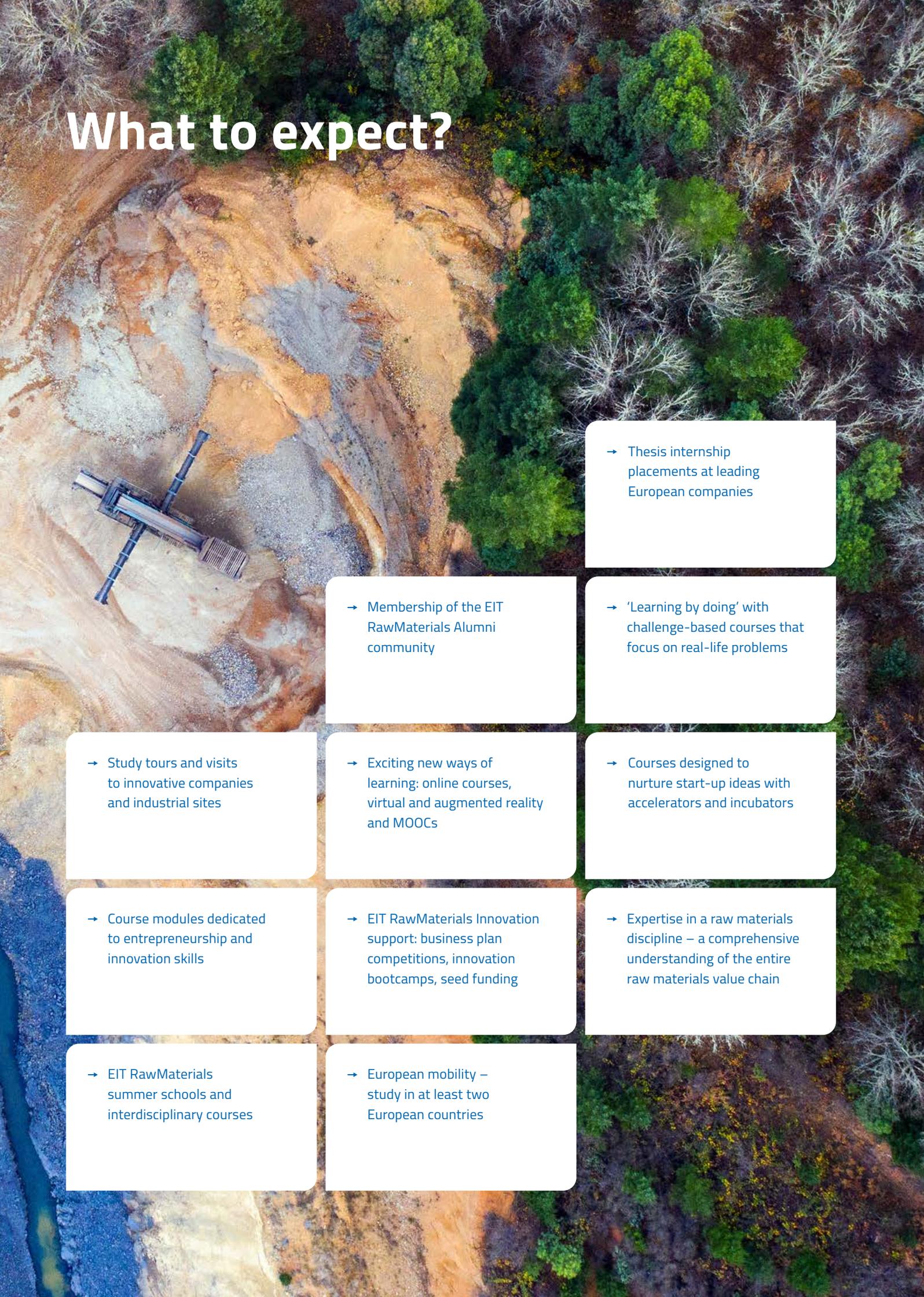
ration, mining and extraction, to mineral processing, recycling and the movement towards a circular economy. EIT RawMaterials aims to equip a new generation of innovators in Europe with the necessary entrepreneurial mind-set for designing and delivering materials solutions. You'll also get the chance to collaborate internationally and develop sustainable solutions to pressing economic, environmental and societal challenges. And long after you graduate, you can stay connected via EIT RawMaterials Alumni.



JOIN AN EIT-LABELLED PROGRAMME AND BECOME A
GLOBAL GAME-CHANGER, ARMED WITH THE KNOWLEDGE,
SKILLS AND EXPERIENCE EMPLOYERS SEEK.



What to expect?

An aerial photograph of a mining site. In the center-left, a large yellow excavator is positioned on a dirt and gravel area. To the right, there is a dense forest of green trees. In the bottom-left corner, a small stream flows through the landscape. The overall scene is a mix of natural and industrial elements.

→ Thesis internship placements at leading European companies

→ Membership of the EIT RawMaterials Alumni community

→ 'Learning by doing' with challenge-based courses that focus on real-life problems

→ Study tours and visits to innovative companies and industrial sites

→ Exciting new ways of learning: online courses, virtual and augmented reality and MOOCs

→ Courses designed to nurture start-up ideas with accelerators and incubators

→ Course modules dedicated to entrepreneurship and innovation skills

→ EIT RawMaterials Innovation support: business plan competitions, innovation bootcamps, seed funding

→ Expertise in a raw materials discipline – a comprehensive understanding of the entire raw materials value chain

→ EIT RawMaterials summer schools and interdisciplinary courses

→ European mobility – study in at least two European countries

Master in Sustainable Materials

Awarded the EIT Label in 2016

Sustainable Material Solutions with SUMA

The SUMA master's programme aims to train tomorrow's resource engineers to work collaboratively in a global world, gathering together some of the best educational programmes in the field of sustainable materials engineering in Europe. The goal is to ensure young scientists obtain a solid background in chemistry and physics, with competences for designing and tailoring new material systems for specific

functions and with a specific view to the sustainability of processes and technologies in the field of material development. SUMA puts a particularly strong focus on innovation, entrepreneurship and leadership and takes a holistic approach to the materials paradigm by exploring circular (eco) design, materials substitution, life cycle engineering and circular economy design, materials processing and recycling, manufacturing and innovation.

Double Diploma	<p>Dual Master of Science degree awarded from two of the following universities:</p> <ul style="list-style-type: none"> – KU Leuven – Montanuniversität Leoben – University of Trento – Grenoble INP – University of Milano-Bicocca <p>EIT Label Certificate</p>
Credits	120 ECTS, 24 months
Language of Instruction	English
Starts in	September
Requirements	Generally, all students should have: Bachelor of Science or Bachelor of Engineering (or equivalent), as well as proof of English language proficiency. Candidates must meet the admission criteria of the master's degree programmes of both partner institutions of their chosen track. Please refer to the individual entry university websites for information on admission requirements.
Tuition fees	<p>Fees vary based on programme track and country of origin.</p> <p>Total fees for EEA students range from €77 to €5,500.</p> <p>Total fees for non-EEA students range from €600 to €12,000.</p> <p>Visit www.master-suma.eu/study/#paths for details</p>
Application Period	<p>Application for the SUMA programme is a multi-step process. Applicants should register on the SUMA website: www.master-suma.eu</p> <p>For information on the registration/application deadlines for the entry universities, please check the following:</p> <p>KU Leuven www.kuleuven.be/english/application/instructions</p> <p>Montanuniversität Leoben https://starter.unileoben.ac.at/en/3274/</p> <p>University of Trento https://international.unitn.it/incoming/admission</p> <p>University of Milano-Bicocca (UNIMIB) https://en.unimib.it/education/how-enrol</p>
Scholarships	For students beginning in September 2021, EIT Label scholarships from EIT RawMaterials of €13,500 per eligible student are available. For information on how EIT Label scholarships will be awarded and who is eligible, please contact the coordinating university directly: master-suma@kuleuven.be

PARTICIPATING UNIVERSITIES

KU Leuven

Belgium

Montanuniversität Leoben

Austria

University of Trento

Italy

Grenoble INP

France

University of Milano-Bicocca

Italy

FOR MORE INFORMATION

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Master in Sustainable Materials

Awarded the EIT Label in 2016

INNOVATION AND ENTREPRENEURSHIP TRAINING

As an EIT-Labelled master's programme, SUMA recognises the importance of providing students with the opportunity to explore the economic relevance of sustainable materials solutions and how they are practically implemented in industrial and societal settings. SUMA students will be provided with innovation and entrepreneurship training addressing the following:

- Courses dealing with the implementation of an innovation strategy at a company level and the management of the product development process and strategic management, creativity and decision-making for product development
- Business simulation games
- Testimonies given by young entrepreneurs on the role of engineering in the start-up of technological spin-off companies
- Case studies presented by industrial and company experts in the field
- Small group and individual project work addressing real world problems

ONE-WEEK SUMMER SCHOOL

Every year the SUMA master's programmes organise a summer school where all students from the different tracks come together to learn from leading experts on a particular sustainable materials topic. During the summer school, students will work together in teams on societal and technological challenges, using the knowledge and lecture content from the expert summer school faculty. The 2019 SUMA summer school supported the SUMA master students in developing competencies in the field of entrepreneurship. The courses and activities were focused on methods and tools to guide the process of start-up creation. Theoretical approaches for new business creation were presented and students were invited to develop and pitch ideas related to start-up creation.

ARE YOU A STUDENT WHO IS:

- Interested in earth sciences, mining, materials sciences and engineering?
- Motivated to explore the connection between materials technology and its environmental and socio-economic factors?
- Keen to become entrepreneurial and start your own company?
- Motivated to work closely with industry and research on cutting-edge challenges?

ATLANTIC COPPER CHAIR ACTIVITIES (ACCHAIR)

In 2021, ACCHAIR, supported by Atlantic Copper, the leading Spanish copper producers, in collaboration with the Technical University of Madrid (UPM), will organise 15 conferences taught by international experts in extractive and recycling metallurgy, emphasizing the most recent scientific and technological innovations of these fields. All the ACCHAIR conferences will be live streamed to students from all the universities of the SUMA consortium.

Additionally, ACChair will organise a summer school open to all SUMA students. The course will last one week with three days of classes at the UPM and three days of visits to mining projects and metallurgical plants in the Spanish pyrite belt. The ACCHAIR summer school takes place each year in July.

PROFESSIONAL PROFILES AFTER GRADUATION

The SUMA master's programme aims at training scientists with a solid background in chemistry and physics, with competences for designing and tailoring new material systems for specific functions, and with a specific view to the sustainability of processes and technologies in the field of material development. The main job opportunities are in industries and research centres in Europe, working on the development and production of functional materials for



advanced applications and high technology. Graduates can start a career as highly valued future leaders in positions of responsibility in managing advanced material design, production processes and material qualifying protocols in high-tech firms, material diagnostics and analysis in industries and research centres, and material development projects and scientific research projects in the field of material science and technology innovation.

SUSTAINABLE MATERIAL SOLUTIONS WITH SUMA

The SUMA master's programme aims to train tomorrow's resource engineers in collaborative work in a global world, gathering together some of the best educational programmes in the field of sustainable materials engineering in Europe. The goal is to ensure young scientists obtain a solid background in chemistry and physics, with competences for designing and tailoring new material systems for specific functions, and with a specific view to the sustainability of processes and technologies in the field of material development. SUMA puts a particularly strong focus on innovation, entrepreneurship and leadership and takes a holistic approach to the materials paradigm by exploring circular (eco) design, materials substitution, life cycle engineering and circular economy design, materials processing and recycling, manufacturing and innovation.



For me the SUMA master's programme is one of the most enriching opportunities I've ever taken part in. It combines the tools for broadening my knowledge on the topics I'm passionate about, getting to know lots of people with different backgrounds and attend events and seminars from experts of the sustainability world. It's a life changing experience.

— **DAVIDE, ITALY**

Programme Structure

The Sustainable Materials (SUMA) master's programmes are two-year programmes embedded in the engineering programmes of the participating universities. There are in total 9 tracks, each of which has been awarded the EIT Label. Each track of the SUMA programme consists of one full year at an entry university, followed by a second year at one of the other participating universities.

Visit master-suma.eu to explore the different SUMA tracks and module options.

SUMA MOBILITY YEAR 1 (60 ECTS)

TRACK 1
KU Leuven

Sustainable
Materials Track

TRACK 2
University of Trento
(UniTrento)

Sustainable
Materials Track

TRACK 3
University of
Milano-Bicocca
(UNIMIB)

Materials
Development Track

TRACK 4
Montanuniversität
(MU) Leoben

Sustainable
Metallurgy Track

Topics:

- Materials and processing
- Sustainability and recycling
- Circular (eco) design and life cycle engineering
- Materials substitution and manufacturing



SUMMER SCHOOL ON CIRCULAR ECONOMY



SUMA MOBILITY YEAR 2 (60 ECTS)

1A → Grenoble INP
1B → UniTrento
1C → MU Leoben
1D → UNIMIB

2A → Grenoble INP
2B → UniTrento
2C → MU Leoben

3A → KU Leuven

4A → KU Leuven

Topics:

- Innovation, entrepreneurship and leadership (30 ECTS)
- Industrial internship (6 ECTS)
- Master thesis (24 ECTS)



Exclusive activities and support for EIT-Labelled students

Students on EIT-Labelled master's programmes within the EIT RawMaterials Academy receive a range of additional opportunities to boost their innovation and entrepreneurship skills, grow their network in the raw materials sector and gain the experience they need to thrive.

These exclusive events bring together EIT-Labelled students from across the Master School, and form the basis of your shared learning experiences, making you a full member of the EIT RawMaterials community.

SEMESTER 1

- **Label Induction Days.**
Meet the EIT RawMaterials Academy and learn how to get involved in our community and the many opportunities on offer. Sign up for EIT RawMaterials Alumni and start growing your network.
- Vote for your representative on the Label Student Board, or stand for election!

SEMESTER 2

- **Label Start-Up! Days.**
Get together with 100 Label students to meet and learn from five EIT RawMaterials supported start-ups. Hear about the experience of setting up a company in the raw materials sector, and network with entrepreneurs.
- All costs covered by EIT RawMaterials.



SEMESTER 3

→ **The RACE.**

The Raw and Circular Economy Expedition is a challenge-based summer school for 70 students from around the world, taking place over two weeks in four different European countries. Find out more at race.eitrawmaterials.eu.

- All costs covered by EIT RawMaterials for Labelled students selected for participation.

SEMESTER 4

→ **Label-Launch!**

Celebrate completing your EIT-Labelled Master's programme during EIT RawMaterials' major event – the RM Summit. Take part in matchmaking events with EIT RawMaterials industry partners and start-ups, and make new connections with raw materials professionals.

Do you have a raw materials business idea?

EIT RawMaterials offers a range of support for individuals and companies with innovative business ideas, including:

Pre-Jumpstarter Workshop

- This exclusive event for students on the EIT RawMaterials Academy Labelled master's programmes offers support to develop your thinking around a start-up idea and, in particular, to prepare you to apply to the EIT Jumpstarter.

EIT Jumpstarter

- One of Europe's top pre-accelerator programmes, to help you develop your business idea and understand what's needed to create a successful start-up.

Booster call

- Financial and network access support for start-ups and SMEs in the raw materials sector.

EIT RawMaterials Accelerator

- A three-stage accelerator programme to help start-ups with a developed product to bring their solution to the market.

EIT RawMaterials Alumni

From the moment you join an EIT-Labelled master's programme in the EIT RawMaterials Academy, you are eligible to join EIT RawMaterials Alumni. This organisation provides a great opportunity to network with past and present participants in the many and varied EIT RawMaterials activities, such as business idea competitions, start-ups, professional development courses and Master's and PhD programmes.

It is run by and for its members, who can benefit from events, career development and educational activities and much more, forming a hub for a diverse range of raw materials students, academics and professionals. Furthermore, the EIT RawMaterials Alumni provides you with a connection to the wider EIT Alumni community and alumni events around Europe.



Labelled by:



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