

PERSONAL INFORMATION

Mirco Rodeghiero



Sex Male | Nationality Italian

WORK EXPERIENCE

From January 01, 2008 to present

**Researcher**

Fondazione Edmund Mach (FEM), S. Michele all'Adige Italy, [www.fmach.it](http://www.fmach.it)

- Researcher, R3 (Forest Ecology Unit)

Business or sector Research

From April 19, 2000 to December 31, 2007

**Researcher**

Centro di Ecologia Alpina, Viote del Monte Bondone (TN) Italy.

- Researcher for the Forest Ecology research group working on plant physiology (photosynthesis measurements) forest ecology and biogeochemical cycles (soil respiration measurements).

Business or sector Research

Research Interests

Forest Ecology, Biogeochemical Cycles, Plant Physiology, Climate Change

EDUCATION AND TRAINING

2000-2003

**PhD in Forest Ecology**

Granted

Università degli studi di Padova, Dipartimento TeSAF (Territorio e Sistemi Agro-Forestali)

- Thesis Title: Flussi e depositi di carbonio nei suoli di ecosistemi forestali lungo un gradiente altitudinale: variabilità spazio-temporale e determinanti ecologiche.
- Soil Carbon pools and fluxes in forest ecosystems distributed along an elevation gradient in northern Italy: main determinants and spatio-temporal variability.

1992-1998

**Bachelor + Master in Forest and Environmental Sciences - Laurea quinquennale in Scienze Forestali e Ambientali**

110/110 cum laude

Università degli Studi di Padova, Dipartimento di Entomologia Agraria

- Forest Entomology

PERSONAL SKILLS

Mother tongue

Italian

Other language(s)

UNDERSTANDING		SPEAKING		WRITING
Listening	Reading	Spoken interaction	Spoken production	
C1	C1	C1	C1	C1

Self-assessment (\*) English

(\*) Common European Framework of Reference for Languages

Communication skills

- Good communication skills acquired through group activity, teaching activity and the participation to international meetings.

## Organizational skills and competences

- \* Coordinator of the sampling crews for the Regional Forest Carbon Inventory (Infocarb - Trento Province).
- \* Collaboration in research activity with the University of Copenhagen (Prof. Lars Vesterdal); Boku, Vienna (Dr. Robert Jandl); University of Innsbruck (Prof. Michael Bahn); University of York (Dr. Andreas Heinemeyer); Hebrew University of Jerusalem (Dr. Alon Angert).

## Technical Skills and competences

- Technical knowledge and practical ability to use systems to measure soil respiration and photosynthesis (Licor 6800 - Licor 8100 – Licor 600).
- Experience in use of instruments and sensors to monitor climate and soil variables.
- Practical experience in soil sampling related problems.
- Practical experience in plant physiology measurements: leaf Photosynthesis and Fluorescence in laboratory and field experiments.
- Use of planar optodes for the measurement of in- vitro oxygen consumption by roots and fungi.

## Computer skills and competences

Use of the most common Windows computer packages (Office).  
Statistical packages: SAS, R, Statistica for Windows, Sigma Plot.

## Driving license

- Car driving license (Italian, B type)

## IMPACT OF THE RESEARCH WORK

## Brief summary of the carrier

During my bachelor I worked in Forest Entomology and I co-authored two papers on peer reviewed journals. I started to work as a researcher in plant physiology at Centre for Alpine Ecology in 2000. In the beginning I was mostly involved in photosynthesis measurements on broadleaves and conifer trees. With the start of my PhD at University of Padua, I moved to soil Ecology with a study on the main determinants of soil respiration in forest ecosystems. After completing the PhD I continued to work on soil carbon dynamics and I was involved in the major European projects dealing with the effects of global warming on the carbon cycle of forest ecosystems (Carbomont, CarboEurope, CarboItaly, GHG-Europe). Inside those projects I was responsible for FEM of the soil carbon dynamics related issues (soil sampling to quantify soils C and soil respiration in field sites). Inside the project InFoCarb and the Italian National Forest Inventory I had the opportunity to develop my own methodology of collection of soil samples for carbon determination by writing the soil sampling manuals for the field crews. At the same time I had to teach the foresters (all the northern Italy crews of the former "Corpo Forestale dello Stato") the field operations to properly collect soil samples. In 2008 I was employed by FEM. By that time I continued to work on soil carbon related topics but I also had the opportunity to start some collaborations with FEM researchers going back to physiological measurements (photosynthesis and fluorescence). At the same time I also gave some lectures to high school students about the effects of climate change on forest ecosystems. I also tutored a PhD student who reached really good results with a study on the effects of forest expansion on soil carbon of alpine pastures. The collaboration to the COST ACTION 639 as Italian delegate inside the management committee, gave me the possibility to start collaborating with some foreign researchers and professors. Some of these collaborations brought to the publication of joint papers while some others resulted in book chapters. During the field campaigns I also acquired a good experience in the usage, calibration and maintenance of scientific instruments. I am at present involved in two projects: ICOS (Co-PI) and SmartAlp (Coordinator of work package n. 3). I am looking forward for this position as a professor at University of Trento because I think it will give me the possibility to start some new collaborations by which I can get new fresh inputs to my research activity. Moreover I am confident that the exchange of ideas with the students will help to develop new research ideas and will therefore bring new inputs to my research field.

## ADDITIONAL INFORMATION

## Project coordinator/delegate

*Project Title:* **ICOS** - Integrated Carbon Observation System  
*Funding agency:* EU FP7- INFRASTRUCTURES. Project ID: 211574. ICOS Research Infrastructure receives funding from Member and Observer countries through annual membership contributions, and through host contributions towards specific facilities in ICOS RI. The station networks are funded by different national agencies.  
*Type of project:* Infrastructures  
*Years:* 2008 - present  
*Partners:* Fondazione Edmund Mach (IT), 43 beneficiaries and number of other partners from 20 countries.  
*Total amount funded:* 5 688 035,04 € (FEM: no budget)

*Abstract.* ICOS RI is an organization of twelve member countries and over 100 greenhouse gases measuring stations aimed at quantifying and understanding the greenhouse gas balance of the Europe and neighboring regions. ICOS is a pan-European research infrastructure founded in 2008, with the Head Office located in Helsinki, Finland. ICOS Research Infrastructure (ICOS RI) provides data on greenhouse gas concentrations and is thus part of the European environmental Research Infrastructure landscape.

*Role of M. Rodeghiero in the Project:* Co-PI.

*Project Title:* **SmartAlp** - Pratiche gestionali innovative e strategie di promozione dei prodotti lattiero-caseari di alpeggio.

*Funding agency:* PSR Trento Bando Operazione 16.1.1 "PRESENTAZIONE E SELEZIONE DELLE PROPOSTE PROGETTUALI DEI GRUPPI OPERATIVI DEL PEI IN MATERIA DI PRODUTTIVITÀ E SOSTENIBILITÀ DELL'AGRICOLTURA"

*Type of project:* Piano di Sviluppo Rurale PSR - large grants, (PSR 2014/20)

*Years:* 2017- present

*Partners:* Fondazione Edmund Mach (IT); Federazione Provinciale Allevatori (TN); Università degli studi di Padova; Università degli Studi di Udine; Ente Parco Naturale Paneveggio Pale San Martino.

*Total amount funded:* 493 094,30 € (FEM 141 844,90 €)

*Abstract.* Il progetto si prefigge di valorizzare il prodotto lattiero-caseario ottenuto dalla trasformazione casearia del latte prodotto in alpeggio, promuovendo le molteplici esternalità positive ad essa collegate (ambientali, benessere animale, qualità del prodotto). E' noto come la sostenibilità ambientale e socio-economica dei prodotti e delle filiere viene percepita dal consumatore come un aspetto di qualità estrinseca che aggiunge valore al prodotto e, se correttamente comunicata, gli permette di fare scelte consapevoli e conformi ai propri valori etici e morali. La sostenibilità del prodotto e la sua valorizzazione deve partire dallo sviluppo di un sistema di supporto decisionale per la gestione zootecnica della malga sostenibile da tutti questi punti vista. Concretamente si tratta di ottenere i dati utili a questo scopo attraverso tecnologie innovative (Precision Livestock Farming – PLF) e a costi relativamente contenuti.

*Role of M. Rodeghiero in the Project:* coordinator of the work package N. 3 (effects of grazing on soil carbon).

*Project Title:* **COST action 639** - Greenhouse-gas budget of soils under changing climate and land use (Burnout).

*Funding agency:* European Commission (COST European Cooperation in Science and Technology)

*Type of project:* Earth System Science and Environmental Management (ESSEM), COST ACTION 639

*Years:* 2006- 2010

*Partners:* Fondazione Edmund Mach (IT), 26 EU countries.

*Total amount funded:* 347 829,00 € (FEM 2 000,00 €)

*Abstract.* The main objective of the Action is the improved understanding of the management of greenhouse gas emissions from European soils under different forms of land use and in particular disturbance regimes. Secondary objectives: 1. The identification of hot spots of greenhouse gas emissions from soils. 2. The identification of soil and site conditions that are vulnerable to GHG emissions. 3. The development of an advanced reporting concept across different forms of land use and land use changes. 4. The delivery and communication policy relevant GHG reporting concepts. 5. The improvement of the communication between soil C experts.

The Action aims to identify gaps in previous projects such as the response of carbon and nitrogen pools in soils under typical regimes of ecosystem disturbances and land-use change. To achieve the objectives, the Action will establish a communication platform between experts in different forms of land use, modelers and statisticians, and the contributors to the existing framework of greenhouse gas reporting.

*Role of M. Rodeghiero in the Project:* Italian delegate and member of the Management Committee.

#### Organization of scientific meetings

\* April 20-21, 2011 Florence.

*Title:* **G-SCAN** Global Soil Carbon Network (kick-off meeting). International meeting on soil carbon stocks.

*Rodeghiero M role:* organizer of the meeting and scientific supervisor.

*Objective:* evaluate the possibility of creating a worldwide soil carbon database.

*Participants:* 24 soil scientists from 9 EU and non EU countries.

*Main achievement:* publication of a joint peer reviewed paper.

FEM scientific supervisor in international research projects (soil sampling and soil respiration)

*Project Title:* **AnaEE:** Infrastructure for Analysis and Experimentation on Ecosystems.

*Funding agency:* EU (7th Framework program); ESFRI (European Strategy Forum on Research Infrastructures). Grant Agreement Number: 312690

*Type of project:* Funding research projects for mobility of researchers between the partner's countries.

*Years:* 2012-2016

*Partners:* Fondazione Edmund Mach (IT), + 11 countries involved.

*Total amount funded:* 2 145 000,00 € (FEM 257 000,00€)

*Abstract:* AnaEE is a research infrastructure for experimental manipulations of managed and unmanaged terrestrial and aquatic ecosystems. It strongly supports scientists in their analysis, assessment and forecasting of the impact of climate and other global changes on the services that ecosystems provide to society. AnaEE supports European scientists and policymakers to develop solutions to the challenges of food security and environmental sustainability, with the aim of contributing to a vibrant bioeconomy. AnaEE accomplishes this mission by building substantial links among researchers, science managers, policy makers, public and private sector innovators, and citizens.

*Role of M. Rodeghiero in the Project:* FEM scientific supervisor.

*Project Title:* **GHG-Europe** Greenhouse gas management in European land use systems.

*Funding agency:* EU (FP7 - ENVIRONMENT) Project ID: 244122

*Type of project:* CP-IP - Large-scale integrating project

*Years:* 2011-2013

*Partners:* N. 41 from 15 countries.

*Total amount funded:* 8 925 737,14 € (FEM 77 000,00€)

*Abstract:* The GHG-Europe project aims to improve our understanding and capacity for predicting the European terrestrial carbon and greenhouse gas (GHG) budget by applying a systematic, comprehensive and integrative approach. GHG-Europe quantifies the annual to decadal variability of the carbon and GHG budgets of terrestrial ecosystems in EU27 plus Switzerland and in six data-rich European regions via data-model integration, diagnostic and predictive modelling. Models are calibrated by multi-site observations. Research includes CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O in forests, croplands, grasslands, shrublands, peatlands and soils.

*Role of M. Rodeghiero in the Project:* FEM scientific supervisor.

*Project Title:* **INFC 3+** Italian National Forest Inventory. Complementary phase.

*Funding agency:* Italian Ministry of Agricultural, Food and Forestry Policies

*Type of project:* National (data collection)

*Years:* 2008-2009

*Partners:* Fondazione Edmund Mach (IT), Corpo Forestale dello Stato, CRA (Consiglio per la Ricerca e la Sperimentazione in Agricoltura), Ministero delle Politiche Agricole, Alimentari e Forestali.

*Total amount funded:* 445 319,00 € (FEM 172 400,00 €)

*Abstract:* The main aim of the Inventory is to achieve the information requirements demanded by international agreements (UNFCCC; United Nations Framework Convention on Climate Change) and to collect data useful for the mandatory Kyoto Protocol reporting.

*Role of M. Rodeghiero in the Project:* FEM scientific supervisor.

*Project Title:* **NitroEurope:** The nitrogen cycle and its influence on the European greenhouse gas balance.

*Funding agency:* EU (FP6-SUSTDEV - Sustainable Development, Global Change and Ecosystems: thematic priority 6 under the Focusing and Integrating Community Research programme 2002-2006). Project ID: 17841

*Type of project:* IP - Integrated Project

*Years:* 2006-2011

*Partners:* 62 institutions across Europe, Russia, China and Africa

*Total amount funded:* 26 967 227,00 € (FEM 59 000,00 €)

*Abstract:* The NitroEurope IP (or NEU for short) addresses the major question: What is the effect of reactive nitrogen (Nr) supply on net greenhouse gas budgets for Europe? The objectives are to:  
1) establish robust datasets of N fluxes and net greenhouse-gas exchange (NGE) in relation to C-N cycling of representative European ecosystems, as a basis to investigate interactions and assess long-term change; 2) quantify the effects of past and present global changes (climate, atmospheric composition, land-use/land-management) on C-N cycling and NGE; 3) simulate the observed fluxes of N and NGE, their interactions and responses to global change/land-management decisions, through refinement of plot-scale models; 4) quantify multiple N and C fluxes for contrasting European landscapes, including interactions between farm-scale management, atmospheric and water dispersion, and consideration of the implications for net fluxes and strategies; 5) scale up Nr and NGE fluxes for terrestrial ecosystems to regional and European levels, considering spatial variability and allowing assessment of past, present and future changes; 6) assess uncertainties in the European

model results and use these together with independent measurement/inverse-modelling approaches for verification of European N<sub>2</sub>O and CH<sub>4</sub> inventories and refinement of IPCC approaches. These objectives are met by a program that integrates: 1) an observing system for N fluxes and pools; 2) a network of manipulation experiments; 3) plot-scale C-N modelling; 4) landscape analysis; 5) European up-scaling; 6) uncertainty and verification of European estimates. Cross-cutting activities address management, databases, training & dissemination. NEU will advance the fundamental understanding of C-N interactions at different scales and deliver: process-based models, landscape-level assessments, European maps of C-N pools, N<sub>r</sub> fluxes and NGE, and independent verification of GHG inventories, as required under the Kyoto Protocol.

*Role of M. Rodeghiero in the Project:* FEM scientific supervisor.

*Project Title: CarboItaly:* rete nazionale di misura dei sink forestali ed agricoli italiane e sviluppo di un sistema di previsione dell'assorbimento di gas serra. CarboItaly: The Italian net for measuring forest and agriculture carbon sinks and developing a system to predict the absorption of greenhouse gases by terrestrial ecosystems.

*Funding agency:* Ministero dell'Istruzione dell'Università e della Ricerca (MIUR), Fondo integrativo speciale per la ricerca (FISR).

*Type of project:* collaborative project for data collection.

*Years:* 2006-2008

*Partners:* 16 Italian University and research institutes involved.

*Total amount funded:* 5 824 000,00 € (FEM 288 186,00 €)

*Abstract:* National Italian project with the aim of quantifying carbon sinks by forest and agriculture ecosystems. Five main research lines are planned: (1) measurement of CO<sub>2</sub> fluxes in terrestrial ecosystems (2) regionalization; (3) building and experimental testing of a predicting system; (4) fluxes of non-CO<sub>2</sub> trace greenhouse gases; (5) scenarios and politics.

*Role of M. Rodeghiero in the Project:* FEM scientific supervisor.

*Project Title: CarboEurope-IP:* Integrated Project Assessment of the European Terrestrial Carbon Balance.

*Funding agency:* EU FP6-SUSTDEV (Sustainable Development, Global Change and Ecosystems: thematic priority 6 under the Focusing and Integrating Community Research program 2002-2006.)

*Type of project:* IP - Integrated Project

*Years:* 2004-2008.

*Partners:* The consortium consists of 61 Contractor Institutes from 17 European countries, plus about 30 Associated Partners within Europe and further Collaborating Institutes outside Europe.

*Total amount funded:* 23 608 645,00 € (FEM 137 000,00 €)

*Abstract:* The overarching aim of the CarboEurope-IP is to understand, quantify and predict the terrestrial carbon balance of Europe and the uncertainty at local, regional and continental scale. This is achieved by (1) executing a strategically focused set of surface based ecological measurements of carbon pools and CO<sub>2</sub> exchange, (2) further enhancement of an atmospheric high precision observation system for CO<sub>2</sub> and other trace gases, (3) execution of a regional high spatial resolution experiment and (4) integration of these components by means of innovative data assimilation systems and modelling. The key innovation of the CarboEurope-IP is solving the scientific challenge of quantifying the terrestrial carbon balance at different scales and with known, acceptable uncertainties. The increase in spatial and temporal resolution of the observational and modelling program will allow for the first time a consistent application of a multiple constraint approach of bottom-up and top-down estimates to determine the terrestrial carbon balance of Europe with the geographical patterns and variability of sources and sinks. CarboEurope-IP aims at providing a system for carbon accounting for the European continent, and it will further investigate the main controlling mechanisms of carbon cycling in European ecosystems. CarboEurope-IP integrates and expands the research efforts of 95 European institutes. CarboEurope-IP addresses basic scientific questions of high political relevance.

*Role of M. Rodeghiero in the Project:* FEM scientific supervisor.

*Project Title: Carbomont:* Effects of land-use changes on sources, sinks and fluxes of carbon in European mountain areas.

*Funding agency:* FP5-EESD - Programme for research, technological development and demonstration on "Energy, environment and sustainable development, 1998-2002.

*Type of project:* CSC - Cost-sharing contracts

*Years:* 2001-2004

*Partners:* 13 study sites in 11 EU countries (Universities and Research Centers).

*Total amount funded:* 3 229 269,00 € (FEM 213 250,00 €)

*Abstract:* In support of the Kyoto Protocol, CARBOMONT aims to quantify and understand the sources, sinks and fluxes of carbon and their variability in non-forest European mountain ecosystems in different land use. CARBOMONT will be carried out in study sites along a European transect from 42-68° Northern latitude. In each study site differently managed and abandoned ecosystems will be investigated in comparative manner, focusing on carbon sequestration and flux partitioning. Interactions between the carbon and nitrogen cycle will be analyzed as far as carbon flux rates and source/sink relationships are concerned. Experimental results will be incorporated into process-oriented ecosystem and landscape scale carbon balance models. These will be applied to analyze how contrasting policy scenarios, as defined by focus groups set up at each site, may alter ecosystem and landscape carbon sequestration.

*Role of M. Rodeghiero in the Project:* FEM scientific supervisor.

*Project Title:* - **InfoCarb:** Forest Carbon Inventory of Trento Province.

*Funding agency:* CARITRO (Fondazione Cassa di Risparmio di Trento e Rovereto) through the project "Carbon Fluxes and Pools in Forest Ecosystems" and by the Carbolitaly project.

*Type of project:* collaborative project for data collection.

*Years:* 2001-2002

*Partners:* Centro di Ecologia Alpina (IT); Provincia Autonoma di Trento (Servizio Foreste e Fauna); Consiglio per la Ricerca e la Sperimentazione in Agricoltura (CRA); Ministero dell'Ambiente e della Tutela del Territorio e del Mare.

*Total amount funded:* FEM 130 000,00 €

*Abstract:* The aim of the Forest Carbon Inventory (acronym: INFOCARB) was to measure the organic carbon stored in the forest ecosystems of the Trento region (Provincia Autonoma di Trento, Northern Italy) in both above- and belowground pools, according to the Kyoto protocol and IPCC requirements.

*Role of M. Rodeghiero in the Project:* FEM scientific supervisor.