



# COMET

COOrdination and iMplementation  
of a pan European instrumENt for Radioecology

Issue 1  
Dec. 2014

From...



## Welcome to the 1<sup>st</sup> COMET project newsletter

The EC-FP7 project COMET started in June 2013 and will end in 2017. We aim to strengthen the pan-European research initiative on the impact of radiation on man and the environment by facilitating the integration of radioecological research, including both the human food chain and the protection of wildlife.

At launch, the consortium had thirteen partners but seven more organisations have now joined through the FRAME and RATE projects, these are: [Universitat Autònoma de Barcelona](#), [University of Seville](#),

[Woods Hole Oceanographic Institute](#), [ETH-Zurich](#), [Tokai University](#), [ANSTO](#) and the [Technical University of Denmark](#).

COMET will help realise the priorities identified in the [Strategic Research Agenda \(SRA\)](#) for radioecological research. A roadmap and implementation plan is being developed in collaboration with the [ALLIANCE](#), [MELODI](#) and [NERIS](#).

COMET initiates highly innovative research. Initial studies to be conducted will be on: NORM, forest & marine radioecological



modelling, food chain & particle modelling, acquiring transfer data for wildlife and trans-generational and epigenetic effects.

**We are a great team, if you want to take part, via working groups, join the ALLIANCE.**

## Establishing Taxonomic Models for Wildlife

Most approaches to assess the exposure of wildlife to ionising radiation use a simple organism to media (e.g. soil or water) concentration ratio. This is highly variable being influenced by site specific parameters such as soil type or water chemistry.

Recently an [alternative approach](#) has been proposed which takes account of inter-site variation. In COMET, we are working in collaboration with the UK based [TREE project](#), to see if we can use this approach to establish taxonomic based models for terrestrial organisms, focussing on species

representing the ICRP Reference Animals and Plants.

We have sample sites in Chernobyl (Ukraine), Norway, Japan and Spain (in collaboration with the University of Extremadura). Sampling at the COMET sites in Chernobyl, Spain and Japan began early this summer.

**Work package leader:**  
[Astrid Liland](#)



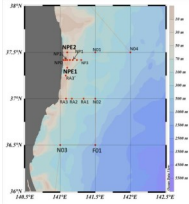
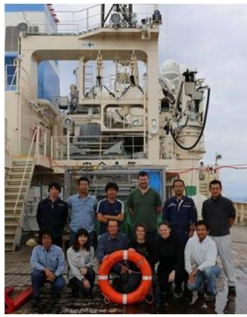
Spanish & Chernobyl sampling sites & sampling pine trees in Chernobyl

### The relationship of COMET to other projects and platforms

COMET will complement and build upon the foundations laid by the ongoing EU Network project [STAR Network of Excellence \(STAR NoE\)](#) (2011-2015) and the [European Radioecology Alliance \(ALLIANCE\)](#). By collaborating with the European platforms on nuclear and radiological emergency response and recovery ([NERIS](#)), low dose radiation risk ([MELODI](#)), dosimetry ([EURADOS](#)) and relevant training networks (e.g. [EUTERP](#) and [ENEN](#)) COMET will contribute to implementation of the [HORIZON 2020](#) umbrella structure for radiation protection.

[www.comet-radioecology.org](http://www.comet-radioecology.org) & [www.radioecology-exchange.org](http://www.radioecology-exchange.org)

COMET co-ordinator: [Hildegard Vandenhove](#)



The COMET-FRAME team & ocean sampling sites

## New Partners & Projects: COMET-FRAME

The COMET-FRAME project - "The impact of recent releases from the Fukushima nuclear accident on the marine environment" is built upon a strong collaboration of scientists from Spain, USA, Belgium, Switzerland and Japan.

Our research will answer questions such as: what fraction of the total releases is stored in sediments and what did aerial contamination contribute to this; how

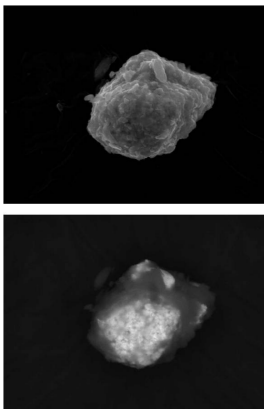
much radioactivity is still leaking from Fukushima Dai-ichi (FD); temporal changes in contaminants; impacts on marine biota.

In October 2014 there was an oceanographic cruise to collect samples of water, plankton, fish and sediments from the most heavily impacted areas between the Kuroshio and Oyashio currents in the Pacific Ocean off the east coast of Japan. These samples will be analysed for <sup>137</sup>Cs,

<sup>134</sup>Cs, <sup>90</sup>Sr, plutonium isotopes, <sup>236</sup>U and <sup>129</sup>I; the marine biota will also be analysed for natural radionuclides. A similar cruise will be conducted in 2015.

The team also has access to samples from coastal sites around the FD NPP via COMET partner **Fukushima University**.

**Team leader:**  
Pere Masqué (UAB)



Electron microscopy of the same particle: Top image obtained from the secondary electrons, the bottom image from backscattered electrons

## New Partners & Projects: COMET-RATE

The COMET-RATE project - "Radioactive particle transformation processes" is built upon the collaboration of scientists from Spain, Norway, Denmark and Australia.

The aim of the project is to fill knowledge gaps related to transformation processes influencing the weathering of radioactive particles released to different

ecosystems and the subsequent release of associated radionuclides in order to reduce the uncertainties in environmental impact assessments of particle contaminated sites.

COMET-RATE will focus on particle characteristics, weathering rates, remobilization and the prediction of ecosystem transfer of radionuclides associated with U and/or

Pu containing particles originating from selected key sources (e.g. nuclear weapons tests, nuclear reactor accidents and NORM). These studies should reduce uncertainties in model predictions associated with particle contaminated areas.

**Team leader:**  
Rafael Garcia-Tenorio  
(University of Seville)

## Events

**Workshop:**  
Molecular Mechanisms of Radiation Toxicity at Chronic Low Dose Levels  
(Dec. 10-12 2014)

**Training course:**  
Naturally occurring radioactive material (NORM) in the environment  
(Sept. 7-10 2015)



ICOBTE 2015 will be held in Fukuoka, Japan from 12-15 July 2015.

There will include a special session on radioecology when Dr. Noriko Yamaguchi will give the keynote lecture on the mechanism of Cs adsorption in soil, RIP and soil-to-plant transfer.

We encourage you to submit an abstract to the

conference - **deadline is 18<sup>th</sup> December 2014.**

COMET will host a special session: **Understanding and mitigating the environmental behavior of radiocaesium after the Fukushima accident**.

Outputs may be published in a special issue of Journal of Environmental Quality.

## Contributions to ICOBTE and the COMET Workshop

Following the conference there will be a **COMET workshop** (including a visit to the Fukushima site) from 17-19 July 2015. It will focus on scientific issues of common interest to both Japanese scientists working in the contaminated areas and COMET participants.

**Workshop contact:**  
Brenda Howard (CEH)

For more information on COMET contact: **Hildegarde Vandenhove**

