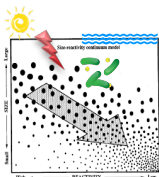


ANDROMEDA
**Analysis techniques for quantifying nano-and
microplastic particles and their degradation in the
environment**

Virtual JPI-O Kick off meeting, , 19th May 2020

Background



Plastics are distributed in the ocean along a continuum of size from macro to MP (1-10 μm) and NP ($1 < \mu\text{m}$) in terms of size due to degradation processes. There has been recent progress in sample collection and analysis, but analytical methods are still long and sometimes expensive, and few techniques can effectively detect NP

Aims

- Achieve cost-effective analysis of MP by in situ-methods and low-cost laboratory analysis. Compare and cross-validate different analytical methods for MPs including the analysis of tire wear particles (TWPs), fibers and paint flakes
- Develop and optimize advanced techniques to measure and quantify small and challenging types of MP particles
- Investigate the degradation of plastic into micro- and NP particles and release of organic additives
- To disseminate project results and developed protocols to a range of audiences, including public authorities, the private sector, academia and the general public



ANALYSIS

GC/MS MS, LC/MS MS

Hyperspectral.

Cost effective analysis and in situ analyses

FLUOROMETRIC

Spectroscopic

Advanced analytical techniques

Chemical markers

Chemical
leaching

MP >10 μm
MP <10 μm

COMMUNICATION

FRAGMENTATION DEGRADATION

Pressure

Light

Mechanic

Bacteria

WP1 Project management (R. Sempéré, M I O): ILVO, SINTEF, UCC, UFZ

WP2 In situ and cost-effective methods
(B. De Witte, ILVO)

IEO, IFREMER, MERINOV, NILU, UFZ,
TALTECH, UCC, UGOT, UM, VLIZ

WP3 Advanced analytical tech., MP, NP
(A. Booth, SINTEF)

VLIZ, McGill, NILU, UFZ, UGOT, WUR



WP4 Natural and accelerated degradation
(R. Sempéré, V. Fauvelle, M I O)

Degradation and fragmentation experiments
(MIO, NILU, UFZ, UG, NILU, McGill)

WP5 Communication and stakeholder engagement (K. Kopke, UCC)

Progress

Officiel start June 2020, virtual KO Meeting, 18th-19th May 2020

- Establishment of the coordination team, advisory board
- Logo
- Recrutement of PhD, Postdoctoral fellows
- Provision of reference materials, selection of pristine materials in progress
- New virtual steering committee, June 22th 2020. Decisions about the reference material
- June 2020, start of the production of degraded material
- website launch
- Organization of the next Andromeda general meeting, MIO Marseille, 14th-15th September 2020
- Stakeholder meeting

Impact

Detection of MP NP and their degradation processes

Andromeda expects to deliver:

- New advanced methods for the analyses of MP (10 μm) and NP up to 0.2 μm or lower
- Our ability to study and monitor the environmental distributions, fate of MP and NP contributing to establishing the necessary knowledge base for risk assessment
- Tools for understanding their uptake by marine organisms
- The development of a platform for conducting accelerated degradation of plastics at the laboratory scale will provide tools for studying degradation mechanisms and the formation of environmentally relevant degradation products including organic additives

Dissemination & outreach

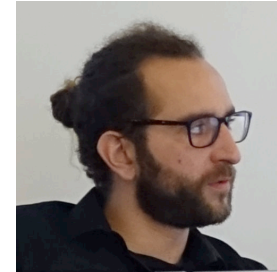
WP5



Task	Title	Deliverables/Milestones
T5.1	Dissemination Plan	The Plan (D5.1) including project logo
T5.2	Project website and use of social media	Website (D5.2) and Social Media Outlets
T5.3	Stakeholder engagement	Two stakeholder focused events that are project milestones (M5.2 and M5.3).
T5.4	Targeted dissemination outputs	Five project fact sheets (D5.3) and Three e-newsletters (D5.4)
T5.5	Direct Outreach to Schools in collaboration with T2.2	Utilising citizen science smartphone app (M2.2) to directly engage schools in partner countries - activity will be supported by factsheets (T5.4)
T5.6	Protocol development for analyses of MP particles	Three types of protocols (D 5.5) developed and Peer reviewed publication (D5.6)

ANDROMEDA, ADVISORY BOARD

organisation	Country affiliation	Representative
Ministry of Ecological Transition	Spain	Mart Martinez Gil-Pardo de Vera
Korea Institute of Ocean Science and Technology (KIOST)	Korea	Wonjoon Shim
Centre for environment fisheries and Aquaculture Science (CEFAS)	UK	Thomas Maes
Carat GmbH	Germany	Albert Van Oyen



The Advisory Board will participate in decision making at the start and throughout the project.

- The Advisory Board will help to guide decision making when milestones are reached and ensuring project progress.
- Advisory Board members will have immediate and direct access to knowledge generated in the project which can be used for legislative and regulative purposes.



Orla-Peach Power



Kathrin Kopke



Amy Dozier



Bavo de Witte



Nelle Meyers



Gert Everaert



Jesús Gago



Olga



Victoria Besada



Ana Filgueiras



Begona Perez



Lucia Viñas



Martin Hassellöv



Karin Mattsson



Josef Brandt



François Galgani



Olivia Gerigny



Adam Gauci



Alan Deidun



Richard Sempéré



Benjamin Oursel





Natascha Schmidt



Vincent Fauvelle



Christian Grenz



Emilie Strady



Dorte Herzke



Urmas Lips



Inga Lips



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Andy Booth



Lisbet Sørensen



Stephan Kubowicz



Thomas Maes



Stephan Wagner





THANK YOU

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