

# [Tools for the localization of the SDGs]

## Identification of SDG-related science and innovation activities and actors,

to support priority-setting and stakeholder mobilisation at the local and regional level

**SIRIS Academic** - Eric Fuster

[info@sirisacademic.com](mailto:info@sirisacademic.com)

[eric.fuster@sirisacademic.com](mailto:eric.fuster@sirisacademic.com)

**“Science, technology and innovation strategies (STI)”** were adopted as  
“integral elements of [...] national **sustainable development strategies** [...]”

Addis Ababa Action Agenda  
United Nations, 2015

Agenda 2030 ↔ STI



1. *Top down*: Policy priority-setting in the framework of the SDGs

2. *Bottom-up*: Institutional aim to contribute to the SDGs

STI policy



Strategies / portfolios of STI actors

## STI for SDGs: Challenges at the local and regional level

- How to **identify science and innovation actors/skills** in SDG-related topics
- How to **set priorities at the local level**, connected with global challenges
- How to **mobilise actors towards SDG-oriented innovation** and collaboration

# How to identify science and innovation actors/skills in SDG-related topics



Marine Pollution Bulletin  
Volume 62, Issue 8, August 2011, Pages 1596-1605

**Microplastics** in the marine environment

Anthony L. Andrady

https://doi.org/10.1016/j.marpolbul.2011.05.030

**Abstract**

This review discusses the mechanism of microplastics in the ocean environment. Beaches result in their surface embedded microparticles that are carried into water by waves. Microplastics (POPs) by partition. The relevant distribution is several orders of magnitude in favour of microparticles laden with high levels of POPs. Bioavailability and the efficiency of their removal are not known and the potential for microplastic pollution of the oceans it is in the ocean food web.

**Biopolymer Assisted Remediation of Microplastics from Fresh and Saline Water Environments using an Integrated Technology of Coagulation-Ultrasonication/Cavitation**

**Project description**

Shellfish provide inspiration for biodegradable plastics

Plastics are ubiquitous. These organic polymers are used in automobiles, electronics, sports equipment and other products. The increasing presence of plastics in the environment, largely due to the inability to filter them from water, has led to the development of biodegradable plastics to help aquatic organisms and their environments. Chitosan is a derivative of chitin, an abundant natural polymer found in crustaceans and insects. The EU-funded MinusMicroplastic is evaluating its potential for use as a microplastic capture agent in water treatment and construction materials.

**Programme(s)**

H2020-EU.1.3.2 - Nurturing excellence by means of cross-

**BACHELOR'S DEGREE IN GLOBAL STUDIES**

**Contents of subjects**

The degree in Global Studies has four modules that contain the subjects into which it is grouped.

**MODULE 1: COMPULSORY SUBJECTS**

SUBJECT 1: THE CONSTRUCTION OF THE GLOBAL SOCIETY  
SUBJECT 2: REGULATORY AND POLITICAL BASES OF THE GLOBAL SOCIETY  
SUBJECT 3: CULTURAL, COMMUNICATIVE, AND ECONOMIC BASES OF THE GLOBAL SOCIETY  
SUBJECT 4: LINGUISTIC AND ANALYTICAL TOOLS  
SUBJECT 5: FINAL YEAR PROJECT

**MODULE 2: OPTIONAL GLOBAL APPROACH SUBJECTS**

SUBJECT 6: ANALYSIS OF GLOBAL CHALLENGES  
SUBJECT 7: REGULATION AND GOVERNANCE OF THE GLOBAL SOCIETY  
SUBJECT 8: EXTERNAL PLACEMENT/INTERNSHIP

**MODULE 3: OPTIONAL REGIONAL APPROACH SUBJECTS**

SUBJECT 9: EUROPE AND THE MEDITERRANEAN IN THE GLOBAL SOCIETY  
SUBJECT 10: ASIA IN THE GLOBAL SOCIETY  
SUBJECT 11: THE AMERICAS AND AFRICA IN THE GLOBAL SOCIETY

**MODULE 4: OPTIONAL THEMATIC APPROACH SUBJECTS**

SUBJECT 12: SCIENCE, TECHNOLOGY, AND GLOBALIZATION  
SUBJECT 13: INNOVATION, STRATEGIC LEADERSHIP, AND GLOBALIZATION  
SUBJECT 14: CULTURE AND GLOBALIZATION  
SUBJECT 15: JUSTICE, POLITICS, AND GLOBALIZATION

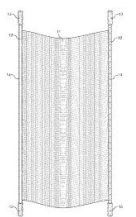
**United States Patent**

US 8,944,253 B2

**MARINE MICROPLASTIC REMOVAL TOOL**

**ABSTRACT**

A microplastic particle removal tool is provided that comprises an elongated mesh screen supported by a pair of opposing pole members. The mesh screen comprises a polymer coating, fine mesh that is adapted to filter microplastic effluent and remove the microplastic particles therefrom during cleanup activities. The pole members are elongated members wrapped in a layer of padding material and inserted to the ends of the mesh screen. The poles support the mesh screen while sitting and are utilized to condense the mesh screen therearound when the device is not in use. During use, the mesh screen is placed in a horizontal condition while microplastic effluent is deposited thereon. A pair of users supports the handle ends of the pole members to tilt the effluent end thereby remove the microplastic particles therefrom via electrostatic attraction. The collected particles are removed from the screen thereafter and discarded.

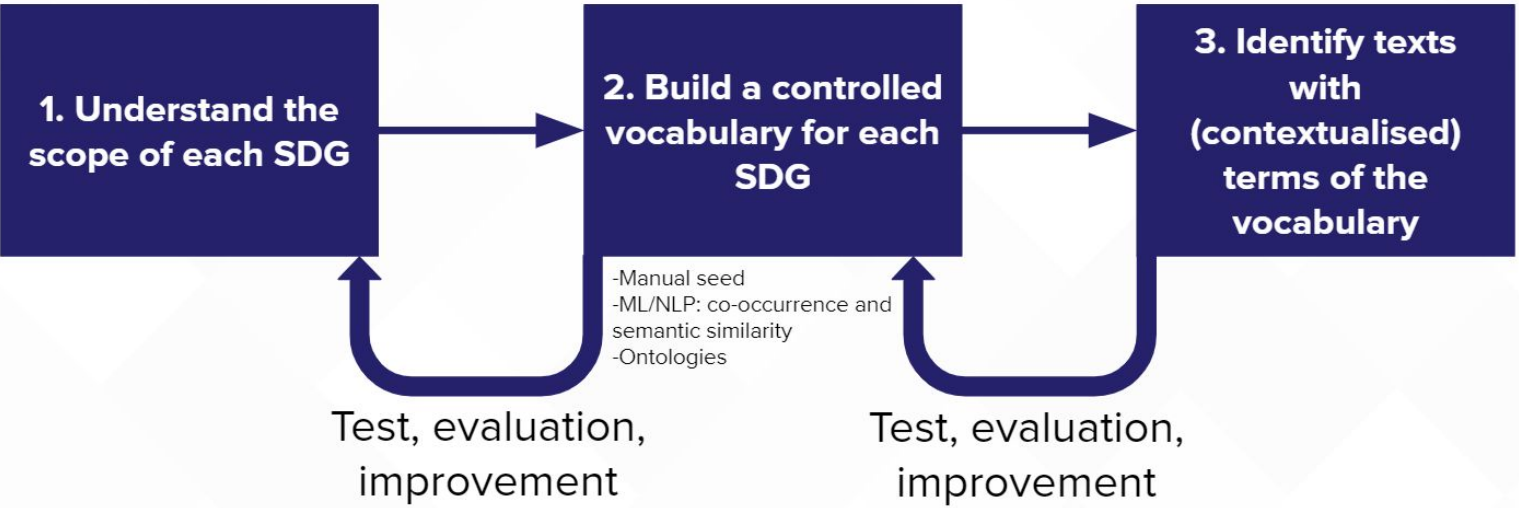


- Scientific publications
- Projects and grants
- Higher education course syllabus
- Patents



“A **controlled vocabulary** (CV) is a carefully selected **list of words and phrases**, which are **used to tag units of information** (such as documents) so that they may be more easily retrieved by a **search**.”

Amy Warner



Manual extraction of key terms



# Result: Building a controlled vocabulary to identify SDG related STI activities

SDG	N. words	Words with contextualisation
SDG 1	102	40
SDG 2	121	17
SDG 3	628	151
SDG 4	114	59
SDG 5	133	33
SDG 6	291	133
SDG 7	206	22
SDG 8	146	58
SDG 9	268	99
SDG 10	110	65
SDG 11	275	95
SDG 12	153	44
SDG 13	301	20
SDG 14	163	49
SDG 15	186	31
SDG 16	297	33
<b>Grand Total</b>	<b>3494</b>	<b>949</b>

## SDG 12 - Responsible consumption and production

keyword	extra
biodegradable bag	
biotic material	sustainable affordable reliable
biowaste	
circular economy	
closing the loop	Sustainable ecological equitative
compost	Sustainable ecological equitative
compost pile	
	...



# Result: Building a controlled vocabulary to identify SDG related STI activities

HORIZON 2020

## A DECentralized management Scheme for Innovative Valorization of urban biowaste

Fact Sheet

Reporting
Results

### Objective

The growing attractiveness of cities leads to increasing population, thus rising energetic and food demands in urban areas. This makes urban waste management increasingly challenging, both in terms of logistics and environmental or health impacts. To decrease the cities' environmental impacts and to contribute to a better resilience of urban areas towards energy or food supply crisis, waste management systems have to be improved to increase recycling of resources and local valorization. In this context, the DECISIVE project proposes to change the present urban metabolism for organic matter (foods, plants, etc.), energy and biowaste to a more circular economy and to assess the impacts of these changes on the whole waste management cycle. Thus, the challenge will be to shift from a urban "grey box", implying mainly goods importation and extra-urban waste management, to a cooperative organization of intra- and peri-urban networks enabling circular local and decentralised valorization of biowaste, through energy and bioproducts production. Such a new waste management paradigm is expected to increase the sustainability of urban development by: (1) promoting citizens awareness about waste costs and values; (2) promoting renewable energy production and use in the city; (3) developing an industrial ecology approach that can promote the integration between urban and peri-urban areas, by providing valuable agronomic by-products for urban agriculture development and so improving the balance of organic products and waste in the city; (4) developing new business opportunities and jobs. In order to achieve these objectives, the project DECISIVE will develop and demonstrate, at real scale, eco-innovative solutions addressed to waste operators and public services, consisting in: (1) a decision support tool to plan, design and assess efficient decentralised management networks for biowaste in urban areas; (2)

Project information

## DECISIVE

Grant agreement ID:

[Project website](#)

Status

Ongoing project

Start date

1 September 2016

Funded under:

H2020-EU.3.5.4.

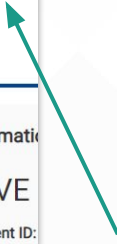
Overall budget:

€ 8 708 643,32

EU contribution  
€ 7 755 101,56

## SDG 12 - Responsible consumption and production

keyword	extra
biodegradable bag	• • •
biotic material	sustainable affordable reliable
biowaste	
circular economy	
closing the loop	Sustainable ecological equitative
compost	Sustainable ecological equitative
compost pile	
	• • •



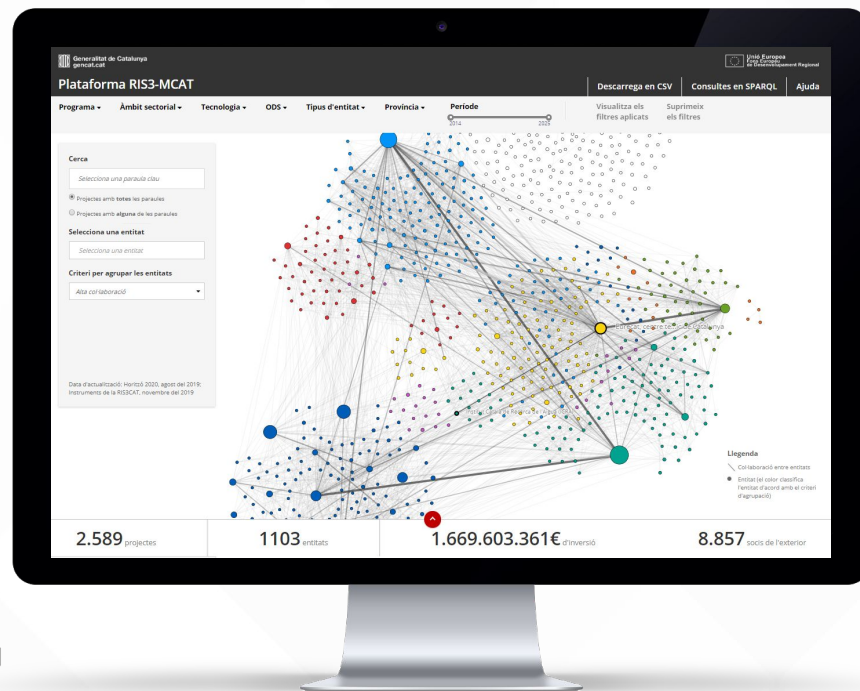
# Application in a region

- 1. Generalitat de Catalunya -  
Catalan Smart specialisation strategy (RIS3CAT)**



## Science and innovation policy - Catalan smart specialisation strategy (RIS3CAT)

Articulating **shared agendas for sustainability and social change supported by R&I**



**2,890 H2020 and ERDF-funded**

**Research and innovation projects**

**Classified into the SDGs**

 **Generalitat de Catalunya**

 **Unió Europea  
Fons Europeu  
de Desenvolupament Regional**

<http://ris3mcat.gencat.cat/#>

**Mapping Platform** of the Research and Innovation Strategy for Smart Specialisation of **Catalunya (RIS3CAT)**



**[Project]**

**Bringing Local and Sustainable Produce Back to the City**

**[Project]**

**Climate monitoring and seasonal forecast for global agricultural production**

Explore the data at:

<http://ris3mcat.gencat.cat/#>



## [Project]

### Bringing Local and Sustainable Produce Back to the City

## [Project]

### Climate monitoring and seasonal forecast for global agricultural production

Climate monitoring and seasonal forecast for global crop production (Horitzó 2020)

€ 170.122 € Inversió total    1 participant    0% empreses privades  
 170.122 € Subvenció total

<b>Àmbits sectorials</b>	Alimentació Energia i recursos
<b>Tecnologies</b>	Sense classificar
<b>Descripció</b>	When provided in a climate-services context, seasonal climate forecasts can enable a more effective adaptation to climate variability and change, offering an under-exploited opportunity to minimise the agricultural impacts of adverse climate conditions. However, the development of seasonal prediction systems of climate-driven impacts on agriculture is still largely in the early stages, especially on a global scale. CLIM4CROP is designed as a multidisciplinary project aimed at exploring how to best exploit seasonal
<b>Paraules clau</b>	adverse climate condition, agriculture, climécrop, climate-driven impact, climate forecast, climate monitoring, climate monitoring seasonal forecast, climate observation, climate-services context seasonal climate forecast, data, exploit seasonal forecast, policy-makers, prediction system, seasonal forecast, seasonal forecast system, seasonal predictability, seasonal prediction system, user
<b>Participants i inversió</b>	Barcelona Supercomputing Center - Centre Nacional de Supercomputació (BSC-CNS) (170.122 €)

Tanca

Explore the data at:

<http://ris3mcat.gencat.cat/#>

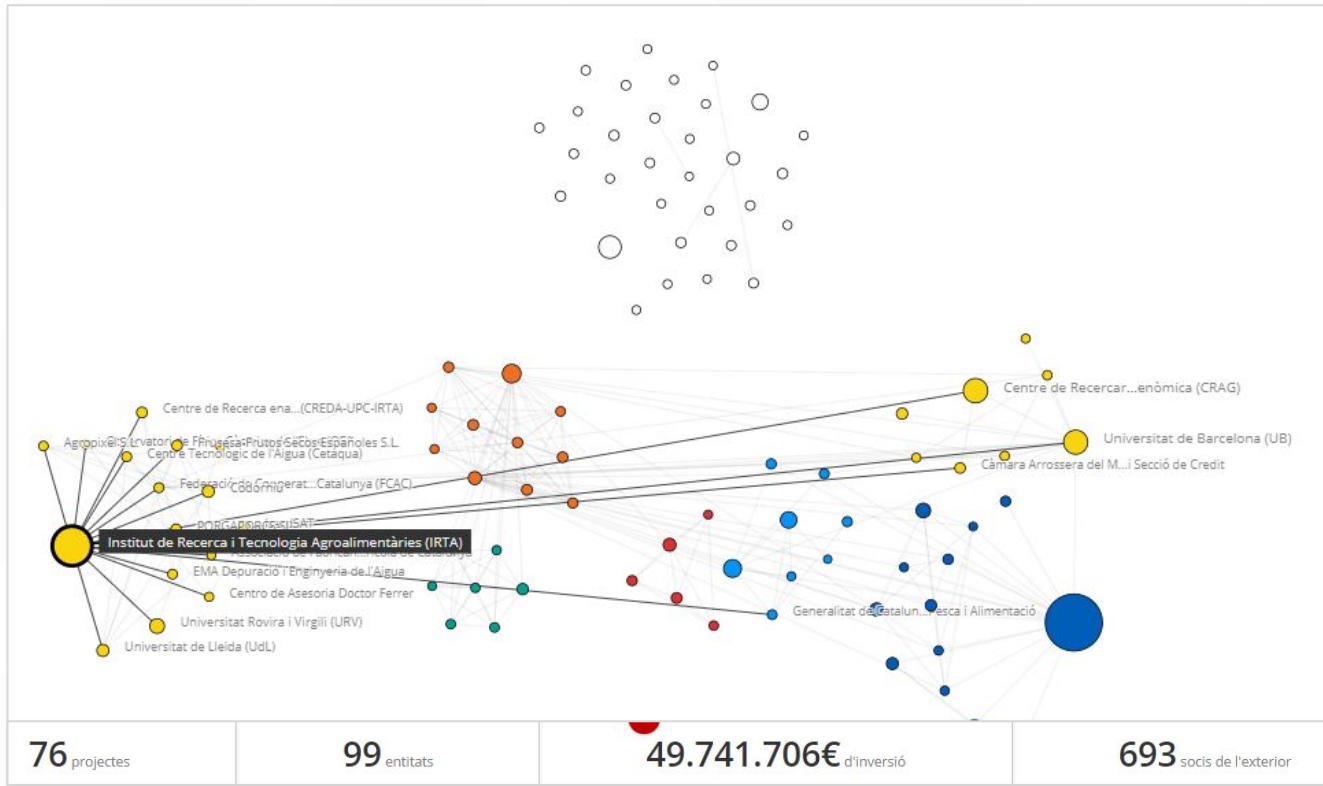




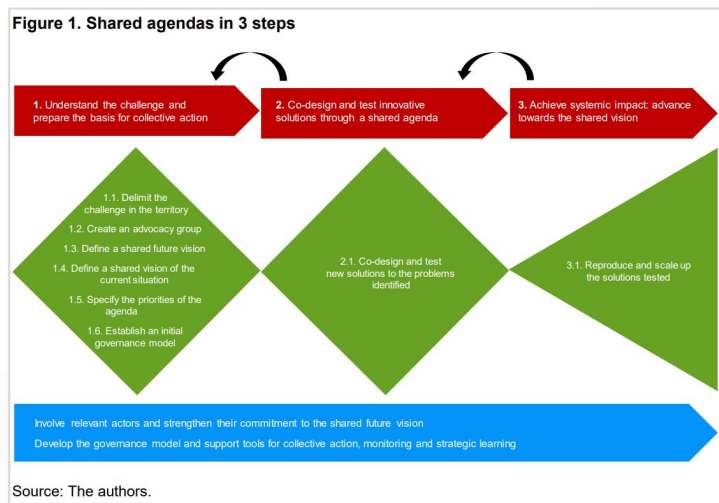
Display organisations by

Type of organisation

- Research center
- Company
- Others (NGOs, Foundations...)
- University
- Public administration



# How to mobilise STI actors towards SDG-oriented innovation and collaboration



## Catalan smart specialisation strategy (RIS3CAT)

### Articulating shared agendas for sustainability and social change

# Application in a local territory

## 2. Université Paris-Est Créteil (UPEC)



## A **university**...

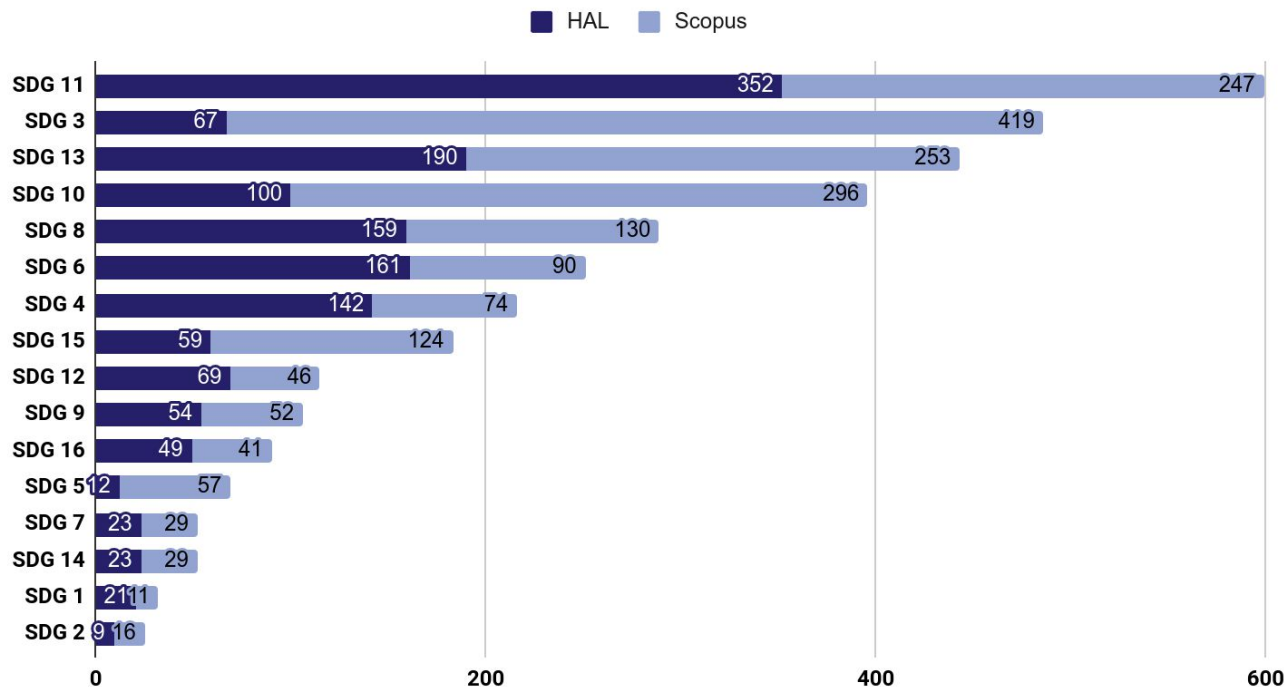
- **Linked with the territory - Paris *banlieue***
- **A research university but NOT a research intensive** university
- Comprehensive thematic coverage, with strengths in **Social Sciences & Humanities // Medicine**

**UPEC** has pledged to become a "**committed university**", focused on the challenges of **social transformation** and aspirations for more social justice and equity.

But, **how to set meaningful and viable priorities?**



## Number of publications related to each SDG



Two complementary sources  
(disciplines, language)



Scopus®



Make cities and human settlements  
inclusive, safe, resilient and sustainable



Ensure healthy lives and promote  
well-being for all at all ages



## [How social and environmental factors impact an urban population]

- Long-term research and innovation project
- Committed to improving people's lives through **public health**
- **Close collaboration** between regional and local authorities, local stakeholders and knowledge (STI) partners
- Applying **new ways of doing research and innovation with the territory**
  - Establishing a **living lab**
  - Promoting **citizen science**
  - Promoting **open science practices**
  - With potential implications in **education programmes and student engagement**



# Key questions

## A tool-kit to identify, map and characterise SDG-related texts

### Still early for conclusions...

#### Challenges / lessons:

**Localisation** → adapt and extend the vocabulary, translate texts, include local data sources

**Social / non-technological innovation** → Requires a special focus (harder to find)

**Interaction with stakeholders** → use the process to build a common understanding of a topic / challenge, and to strengthen mutual knowledge

#### Upscaling

- **The SDG vocabulary is open**, ready to be used anywhere: A controlled vocabulary defining the semantic perimeter of Sustainable Development Goals
- **Can be used** for any institution or perimeter (municipality, region, country...)
- Useful **methodologies for priority-setting and stakeholder mobilisation** towards responsible research and innovation, smart specialisation, STI roadmaps for the SDGs, etc.

# Thank you!

## SIRIS Academic

<http://sirisacademic.com/>

<https://twitter.com/SIRISAcademic>

[info@sirisacademic.com](mailto:info@sirisacademic.com)

## Eric Fuster

[eric.fuster@sirisacademic.com](mailto:eric.fuster@sirisacademic.com)

## Methodology: Francesco A. Massucci (SIRIS Lab)

[francesco.massucci@sirisacademic.com](mailto:francesco.massucci@sirisacademic.com)

More info:

<http://science4sdgs.sirisacademic.com/>

