

# A Semantic Engine for Grey Literature Retrieval in the Oceanography Domain

Sara Goggi, Gabriella Pardelli, Roberto Bartolini, Francesca Frontini, Monica Monachini  
CNR, Istituto di Linguistica Computazionale, "Antonio Zampolli", Italy  
Giuseppe Manzella  
ETTsolutions Genova Italy  
Maurizio De Mattei, Franco Bustaffa  
DP2000 La Spezia, Italy

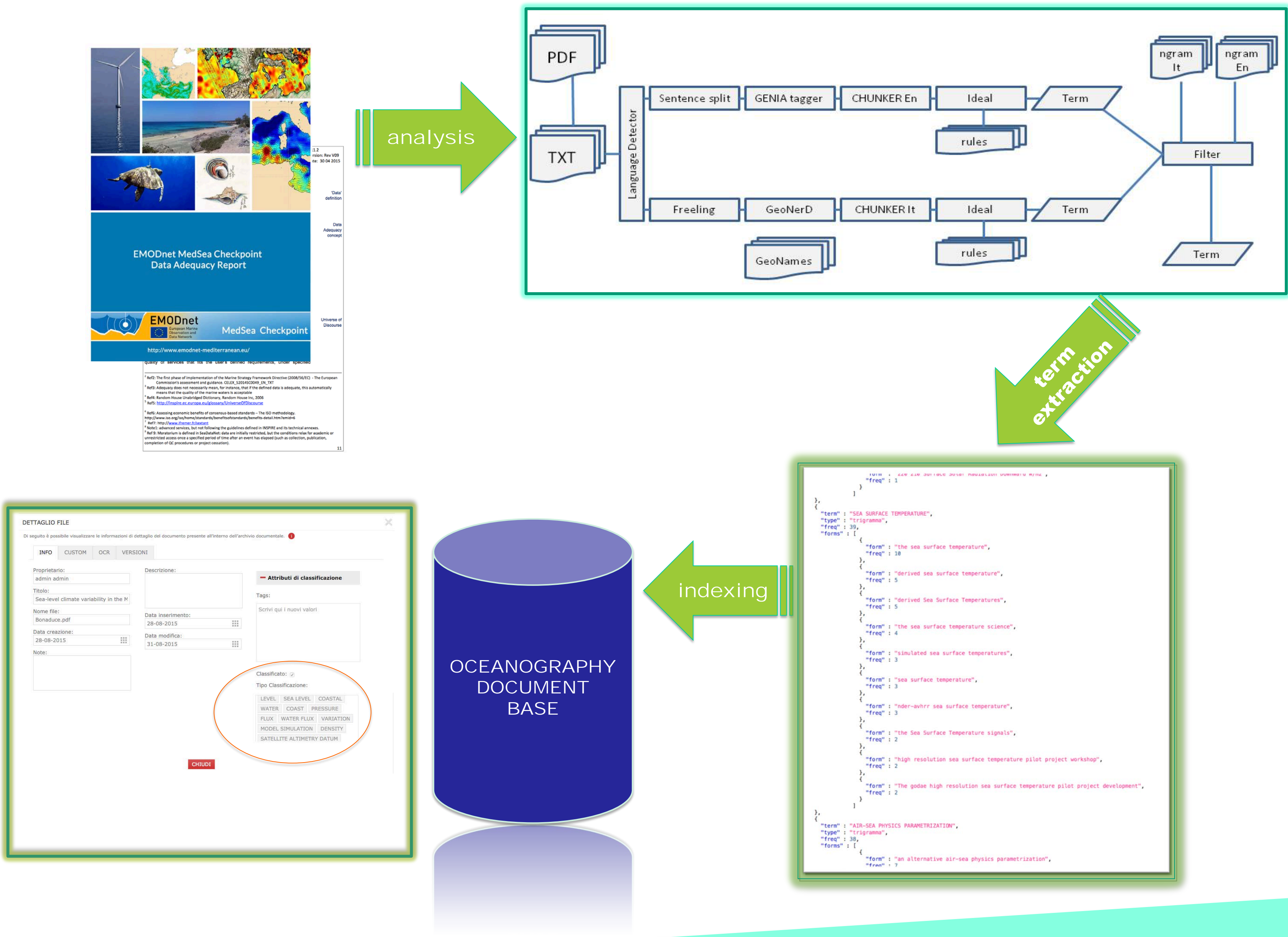
## Introduction

The MAPS (Marine Planning and Service Platform) project is a development of the Marine project (Ricerca Industriale e Sviluppo Sperimentale Regione Liguria (2007-2013)) that aims to build a computer platform to support Operative Oceanographers in their activities.

## ANALYSIS, EXTRACTION, INDEXING SYSTEM

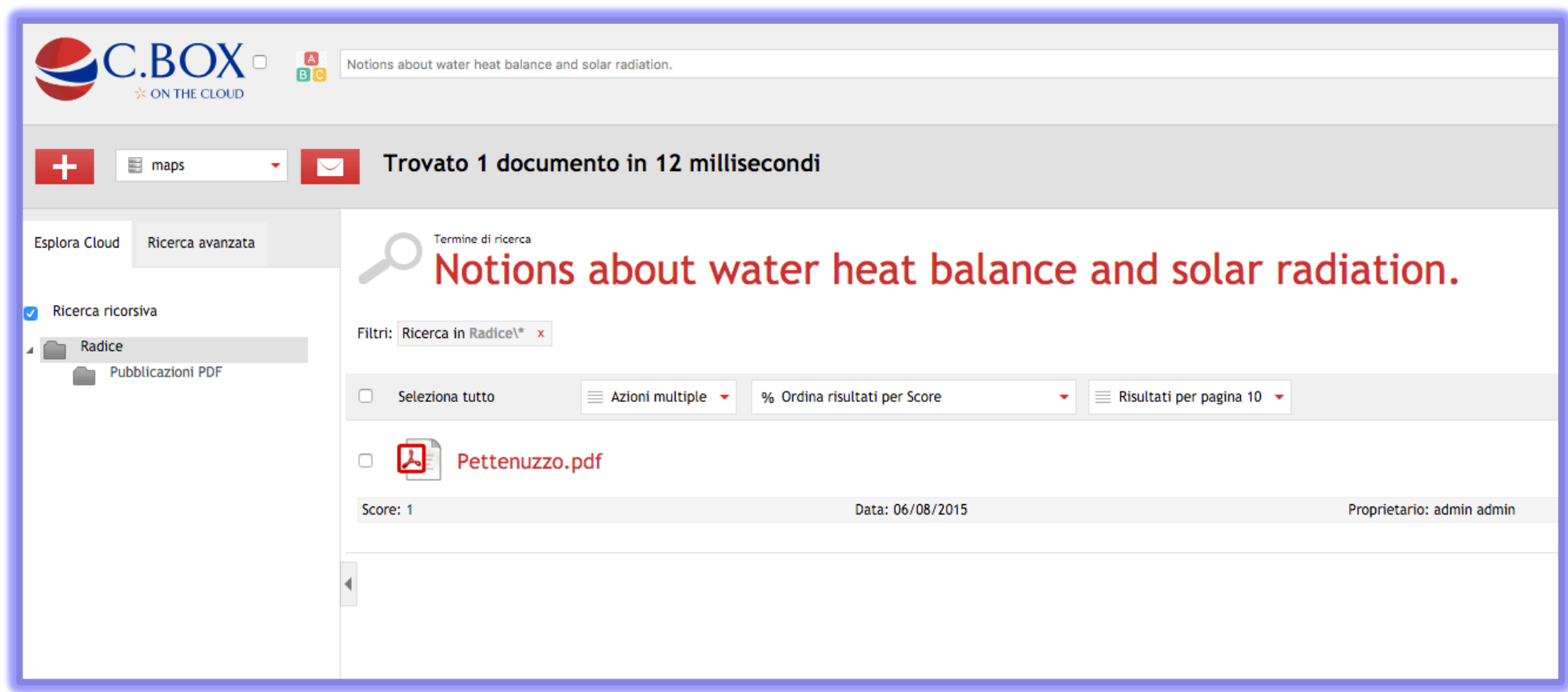
### Community and Requirements

Operative Oceanography is the branch of marine research which deals with the development of integrated systems for examining and modeling the ocean monitoring and forecast. Experts need access to real-time data on the state of the sea such as forecasts on temperatures, streams, tides and the relevant scientific literature. This finds application in many areas, ranging from civilian and military safety to protection of off-shore and coastal infrastructures.



## QUERY, DOCUMENT RETRIEVAL, EVALUATION

water heat balance and solar radiation



In another attempt, Castellani et al. (1998) intercompared different air-sea flux formulae using the atmospheric NWP analyses and found the most appropriate ones in order to obtain a negative surface heat balance for the Mediterranean Sea while maintaining an acceptable water balance. They estimated a 1979-1988 mean value of for the surface heat balance, and so again the Mediterranean heat budget was not closed. More recently Tragou (2003) demonstrated, using ground truth observations at several coastal meteorological stations, that the incoming solar radiation is systematically overestimated for the 30 years period which they considered (1964-1994), by the adopted formulation.

**1.1.1.1 The radiative part of the heat balance**  
The radiative part of the heat balance is composed of solar shortwave radiation and longwave radiation.  
In Figure 1.1 it is shown that about 50% of incident solar radiation reaches the Earth's surface and, on average, about 15% of this energy is absorbed by the ocean most of the incident solar radiation is absorbed by the atmosphere. The albedo (defined as the percentage of incoming radiation that is reflected on the angle at which the Sun's radiation hits the surface) is a key factor in the balance to this apparently simple picture. Solar radiation

**Chapter 1**  
the flux of heat from the ocean's surface to the atmosphere through conduction and convection that is not associated with phase changes of water. This energy is known as sensible heat. There will also be an exchange of the molecules themselves, generally resulting in net evaporation, and therefore transfer of latent heat, from the water surface to the atmosphere. Conversely, freshwater is added to the ocean by means of precipitations.  
The components of the heat balance (divided in radiative and turbulent parts), which are schematically represented in Figure 1.1, are discussed in detail below along with those related to the water balance.

Documento <sup>4</sup>	Q1 <sup>5</sup>		Q2 <sup>5</sup>		Q3 <sup>5</sup>		Q4 <sup>5</sup>		Q5 <sup>5</sup>		Q6 <sup>5</sup>		Q7 <sup>5</sup>		Q8 <sup>5</sup>		Q9 <sup>5</sup>	
	R	S	R	S	R	S	R	S	R	S	R	S	R	S	R	S	R	S
D1	-	-	-	X	X	X	X	6	-	-	-	-	7	-	7	-	-	-
D2	X	X	X	X	X	7	-	7	-	-	-	X	X	-	6	-	-	-
D3	-	-	-	7	-	-	-	7	X	X	-	-	-	6	-	-	-	-
D4	X	X	-	X	X	X	-	7	-	7	-	-	-	X	-	7	-	-
D5	-	6	X	X	X	7	-	-	X	-	-	-	X	X	-	7	-	-
D6	-	-	-	7	-	-	X	-	-	-	-	-	6	-	X	-	-	-
D7	-	-	-	7	-	-	-	-	-	-	-	-	-	7	X	X	X	X
D8	-	8	-	7	-	-	-	-	-	-	X	X	X	X	-	7	-	-
D9	-	-	-	-	-	-	-	7	-	-	-	-	-	7	-	6	X	X
D10	-	-	-	-	-	-	-	-	-	-	X	X	X	7	-	7	-	-
D11	-	-	-	-	-	-	-	7	-	-	-	-	-	-	-	-	-	-
D12	-	-	-	-	-	-	-	7	-	-	-	-	-	-	-	-	-	-
D13	-	7	-	-	-	-	-	-	-	-	-	-	-	-	-	7	-	-
D14	-	-	-	-	-	-	-	7	-	-	-	-	7	-	-	-	-	-
D15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rilevanti ( $n_R$ )	2	2	4	2	2	2	2	2	2	2	2	2	4	1				
Rilevanti selezionati ( $n_{RS}$ )	2	2	2	0	0	0	2	2	3	1								
Selezionati ( $n_S$ )	2	4	2	0	0	0	2	2	4	2								
Precision ( $p = \frac{n_{RS}}{n_S}$ )	1,00	0,50	1,00	0,00	0,00	1,00	1,00	0,75	0,50									
Recall ( $r = \frac{n_{RS}}{n_R}$ )	1,00	1,00	0,50	0,00	0,00	1,00	1,00	0,75	1,00									
Precision									0,75									
Recall									0,81									

Marine Planning and Service Platform (MAPS)

PROGRAMMA OPERATIVO REGIONALE POR-FESR (2007-2013) Asse 1 Innovazione e Competitività

PROGRAMME COMMITTEE

Monica Monachini  
Francesca Frontini  
Roberto Bartolini  
Gabriella Pardelli  
Sara Goggi

ILC-CNR, Pisa, Italy

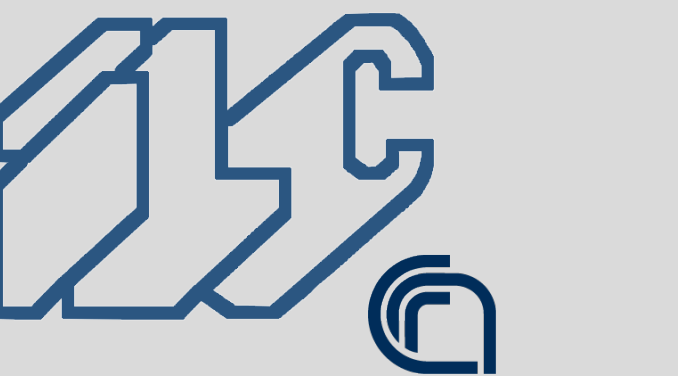
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Maurizio De Mattei

DP2000, LaSpezia, Italy

Giuseppe Manzella

ETTsolutions, Genova, Italy

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