

# Science based Integrated Coastal Zone Management: the Balearic Islands case

Understanding multidisciplinary processes and their interactions at different spatial and temporal scales as a basis for achieving sound and real sustainability as a response to global change

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## Outline / some points for discussion



1. The coastal zone, complexity, functions and services, problems and threats , social-economical effects, in a global change environment (climate change, just one part!)
2. The Balearic Islands case study: present state, historical evolution, touristic activity, Innovation in specific sectors, Islands, still a privileged environment, thresholds, Interest but limitations of habitat conservation approach. Social society awareness. Ideal place for new initiatives. Need of a global perspective
3. General frame, basic underlying principles and challenges. Sustainability. Yes, but ... hard or soft ?. And how ?
4. The new role of science in XXI century, a new path for knowledge based decision making. TMOOS/IMEDEA: some examples of coastal research and technology/know how transfer
5. ICZM: a well established international process to reach multidisciplinary, knowledge based sustainability in the coastal zone. Specific case for islands: limited territory, carrying capacity issues (resources, pressures and infrastructures), Indicators
6. The ICZM Balearic Islands initiative (Government/IMEDEA): a starting point. Project goals and structure, 35 initiatives. Examples, indicators, science and society (CES)
7. The future: real and measurable science based Sustainability, trough a new process of ICZM, Coastal Observing and Forecasting Systems
8. Guidelines for sustainable coastal areas that need to be applicable, applied and enforced, basic principles, preserve environment and residents culture, guarantee business competitiveness
9. Conclusions and suggestions

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# Outline / Logical Framework



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# ICTS - SOCIB: Balearic Islands Coastal Observing and Forecasting System

## A New Approach to Marine and Coastal Research

New technologies, Three-dimensional observations in quasi real time, Forecasting numerical models and Data assimilation for ...

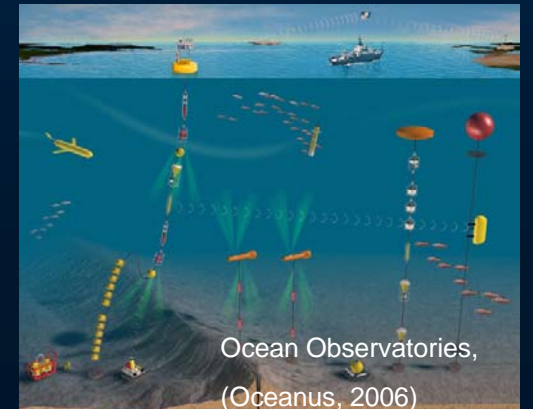
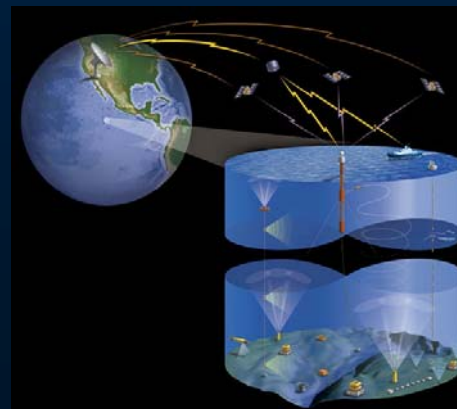
A quantitative major jump, advancement of scientific knowledge and ...

The development of a new form of Integrated Coastal Zone Management, based on recent scientific and technological achievements,

on a global change context (where climate change is one of the most important, but not the only one...), and following sustainability principles



OOI, Regional Scale Nodes (Delaney, 2008)



Ocean Observatories, (Oceanus, 2006)

# ICTS - SOCIB: Balearic Islands Coastal Observing and Forecasting System

To address this general objective, five different specific objectives have been identified:

1. Scientific objectives
2. Technological objectives
3. Strategic objectives (in response to society needs)
4. Outreach and Education
5. Training of scientist, students, engineers and technicians

# ICTS - SOCIB: Balearic Islands Coastal Observing and Forecasting System

## The basic components of SOCIB

### 1. Observational sub-system

- in situ moored and drifting sensing systems
- Coastal and offshore instrumented installations
- Remote sensing from satellites
- Shore-based remote sensing with radar

### 2. Forecasting sub-system

- Ocean currents and wave at different scales
- Ecosystem variability
- Data assimilation and relevant analysis at overlapping spatial and temporal scales

### 3. Data management and dissemination

- The latest in data server technology and internationally accepted protocols
- Quality control
- World Wide Web, open source
- Effective data archiving, delivery and communication

### 4. Outreach and education

- Focus on practical applications
- Identify and assess needs and data preferences
- Obtain user feedback
- Targeting undergraduate and graduate student/teacher audience as end-users

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## Conclusions and Suggestions (general)



- ICZM in the Balearic Islands. Tourism driving force. Know how and social society awareness. Take into consideration islands character. Ideal conditions
- Discuss basic underlying initial principles, real sustainability, ecosystem based management, preservation and restoration, limits to growth, indicators, thresholds, in a global change environment
- Coastal observing and forecasting systems – new technologies, monitoring and forecasting capabilities: baseline data, know how as a basis for ICZM. International frame, examples. Balearic Islands scientific/technological leadership
- Science and society: using state of the art scientific results, involve stakeholders to guarantee real sustainability. Progressive changes. Governance. Potential for international leadership: from sector's innovation to global innovation
- Ethical values: "*Science sans conscience n'est que ruine de l'ame*" (Rabelais).

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## Conclusions and Suggestions (specific)

- Develop a methodological framework and model approach to habitat preservation that incorporates ecosystem-based, integrated management in global change scenario
- Develop common convergent strategies, definitions and legislation for habitat preservation and restoration
- Promote research, technological innovation and development for monitoring coastal habitats
- Take management plans beyond the “paper park” phase and into the implementation phases, combining top-down and bottom-up initiatives
- Incorporate long term financing and enforcement strategies into management plans
- Recognize the important role of sustainable tourism as a self-financing mechanism for habitat preservation
- Involve stakeholders and decision-makers at all stages of management
- Recognize that coastal habitat preservation is just one small piece of the puzzle that leads to sustainability
- The real challenge is piecing together all of the elements through the process of knowledge based ICZM in a global change environment.
- This implies a change in our present model of society.

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# Muchas gracias

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