ENCORA - Theme 5
Long term coastal geo-morphological change

*initiative for a **Coordination Action** within the European coastal research **and** practitioners community*

WHY ?

Effective management of coastal systems is crucial to the protection and preservation of all coastal communities. All coastal authorities are faced with the need to make predictions concerning the behaviour of the coastline over a timescale of order 50 years in order to fulfil integrated coastal zone management planning requirements. The main challenge addressed by this theme, therefore, is to promote the development and demonstration of emerging and new methodologies for the prediction of long-term geo-morphological changes to coastal and estuarial behaviour systems including the effects of climate change and to disseminate this new knowledge across Europe.

It is important to both develop calibrated modelling tools and the framework in which they are used, and also to demonstrate the implementation of this methodology using a standard of data quality and coverage that can be reasonably achieved by European coastal authorities.

Shoreline Management Plans (SMPs) were introduced in the UK in the 1990's. The new criteria for the preparation of the next generation of SMPs now require each local coastal authority to consider coastal management strategies that must address a time-scale of 70 years into the future. Emphasis is placed on the need to make predictions of coastal changes and quantitative risk assessments over this timeframe. To address this need the UK Futurecoast project provided a major step forward in conceptualising the factors affecting coastal change. A 'behavioural systems' approach was adopted, which involves the identification of the different elements that make up the coastal structure and developing an understanding of how these elements interact on a range of both temporal and spatial scales. The UK government is also currently mid-way through an ambitious 10 year research programme concerning the prediction of morphological change within estuary environments. The initiative is known as the Estuary Research Programme (ERP). This work is investigating the tools which are available at present and is also developing new approaches, which cover a range of spatial and temporal scales, including large scale long term change. Some of this work is transposing the behavioural systems' approach, used in the Futurecoast project, to estuarine environments. One of the key outputs from the ERP will be an integrated estuary management system (EMS) which allows the impacts of developments within estuarine areas to be assessed using a range of techniques that have been developed during the 10 year programme.

Hybrid models for long term morphological changes are also under development in DK. In this context, hybrid models are models in which limited coastal area process modelling is combined with empirical knowledge of morphological behaviour.

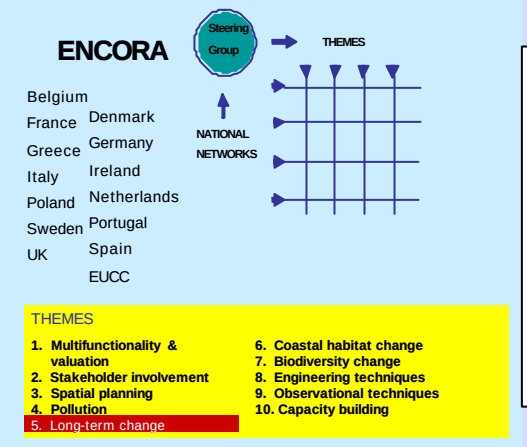
It is envisaged that this pioneering work will inform further developments at the European level.

WHAT ?

The primary objective of this theme is:

Promoting the development, demonstration and dissemination of new and emerging models and methodologies for the prediction of long-term geo-morphological changes to coastal and estuarial behaviour systems including the effects of climate change

Considerable progress can be made at the European level by networking activities to spread existing examples of good practice and research amongst European partners.



The theme integrates research and disseminates knowledge on long-term coastal geo-morphological change across the European countries.

HOW ?

Proposed major co-ordinating activities

- Establishment of a Community of Practice:

  to further the development and application of emerging models and methodologies for coastal and estuarial geo-morphological change;

  to identify, enhance and provide access to historic data sets;

  to identify key demonstration sites for future collaborative research projects;

  to promote the application of the new methodologies to a range of demonstration field sites across Europe;

  to promote the dissemination of good practice guidelines across Europe e.g. FUTURECOAST, ERP, case studies of ICZM stocktake; case studies from Thames Estuary Partnership

  establishment of a core group for launching an IP proposal on ICZM in FP7, focusing on Geo-morphological change.

- Intertwining of existing research and development projects to promote the development of new methodologies for the prediction of long-term geo-morphological changes to coastal and estuarial behaviour systems.

  examples:
  - A risk based framework for predicting long-term beach evolution (University of Plymouth, UK)
  - COASTVIEW project (EU project Lead by University of Plymouth, UK)
  - BAR project (EU project lead by University of Sussex, UK)
  - Integrated morphological modelling of rivers, estuaries and coastal zone (The overall project Coasts and Tidal inlets is financed by The Danish Technical Research Council and led by Danish Technical University).
  - Longterm morphological modelling of coastal areas. (DHI Water & Environment, Denmark).
  - ERP Uptake Project - dissemination of practical use of ERP 1 estuary morphology methods (Posford Haskoning)
  - A co-ordinated and strategic approach to coastal monitoring for the Welsh Assembly (Posford Haskoning)
  - Long-term & large-scale modelling of cliff/platform/beach evolution in North Norfolk (Bristol/Newcastle University)

- To promote exchange visits of young researchers and practitioners across Europe with interests in geo-morphological change.

  Examples of partners willing to contribute:
  University of Plymouth
  Posford Haskoning
  Halcrow
  HR Wallingford
  UK Environment Agency
  Thames Estuary Partnership
  RIKZ
  Danish Technical University
  DHI
  Polish Academy of Sciences

- Promotion of interdisciplinary training and education in the techniques of coastal geo-morphological change.

  Examples of partners willing to contribute:
  Summerschool for young researchers (COZONE, UK)
  Thames Estuary Research Forum
  Posford Haskoning

WHO ?

Theme lead

University of Plymouth

Professor Andrew J Chadwick

A.Chadwick@plymouth.ac.uk

ENCORA Theme 5
Long term coastal geo-morphological change
List of participants

UK
University of Plymouth
achadwick@plymouth.ac.uk
dreeve@plymouth.ac.uk
gmasselink@plymouth.ac.uk
dhuntley@plymouth.ac.uk
mdavidson@plymouth.ac.uk
Southampton University
R.J.Nicholls@soton.ac.uk
Atkins Water
Jonathan.McCue@atkinsglobal.com
Cardiff University
FalconerRA@Cardiff.ac.uk
Proudman Oceanographic Laboratory
dp@pol.ac.uk
jmh@pol.ac.uk
University of Ulster
d.jackson@ulster.ac.uk
University of Brighton
S.B.Mitchell@bton.ac.uk
University College London
r.r.simons@ucl.ac.uk
h.burningham@geog.ucl.ac.uk
J.French@ucl.ac.uk
University of Sussex
c.moses@sussex.ac.uk
University of Dundee
p.dong@dundee.ac.uk
University of Bristol
Jim.Hall@bristol.ac.uk
Mike.Walkden@bristol.ac.uk
HR Wallingford
r.soulsby@hrwallingford.co.uk
Royal Haskoning
n.beech@royalhaskoning.com
Environment Agency
larissa.naylor@environment-agency.gov.uk
Imperial College
[r.maciver@imperial.ac.uk]
Lancaster University
s.ilic@lancaster.ac.uk
University of Exeter
M.R.Belmont@exeter.ac.uk
University of Manchester
p.k.stansby@umist.ac.uk
Plymouth Marine Laboratory
RJU@pml.ac.uk
Bournemouth University
Emma Treby
[ETreby@bournemouth.ac.uk]
Halcrow
Helen Jay
JayH@Halcrow.com
Thames Estuary Partnership
d.james@thamesweb.com

Poland
Polish Geological Institute
Joanna.Zachowicz@pgi.gov.pl,
szymon.uscinowicz@pgi.gda.pl
University of Gdansk
oceak@univ.gda.pl
oceju@univ.gda.pl
University of Szczecin
muss@univ.szczecin.pl,
kaz@sus.univ.szczecin.pl
Polish Academy of Sciences
grzegorz@ibwpan.gda.pl
zbig@ibwpan.gda.pl

Belgium
Administratie Waterwegen en Zeewezen, afdeling Waterwegen Kust
bernard.deputter@lin.vlaanderen.be
Belgische Geologische Dienst (BE)
Cecile.Baeteman@naturalsciences.be
Resource Analysis NV (BE)
els.vancleemput@vt4.net
Universiteit Gent, Afdeling Protistologie en Aquatische Ecologie (BE)
Wim.Vyverman@ugent.be
Universiteit Gent, Afdeling Protistologie en Aquatische Ecologie (BE)
Koen.Sabbe@ugent.be
Université de Liège, MARE-group (BE)
MGregoire@ulg.ac.be

Greece
Aristotle University of Thessaloniki, (GR) , Prof. Y. Krestenitis
ynkrest@civil.auth.gr
University of Aegean, (GR),
Assoc. Prof. Th. Karambas
karambas@civil.auth.gr
Hellenic Centre for Marine Research, V. Kapsimalis kapsim@ath.hcmr.gr
University of Athens, K. Pavlopoulos Harokopio kpavlop@hua.gr

Denmark
DHI Water and Environment, Hakeem Johnson, hkj@dhi.dk, (DK)
Danish Coastal Authority, Christian Laustrup, cl@kyst.dk, (DK)
GEUS, Peter Gravesen, pg@GEUS.dk, (DK)
Danish Technical University, Jørgen Fredsøe, jf@mek.dtu.dk, (DK)
Danish Technical University, Rolf Deigaard, rd@mek.dtu.dk, (DK)
Institute of Geography, University of Copenhagen, Morten Pejrup, mp@geogr.ku.dk (DK)
Univ. of Southern Denmark, Mogens Flindt, mrf@biology.sdu.dk (DK)

France
BRGM
n.lenotre@brgm.fr
r.pedreros@brgm.fr
c.oliveros@brgm.fr
d.idier@brgm.fr
CETMEF
Philippe.sergent@equipement.gouv.fr
EDF/LNHE
j-m.hervouet@edf.fr
michel.benoit@edf.fr
catherine.villaret@edf.fr
Université de Toulon
vincent.rey@lseet.univ-tln.fr
Université de Caen
levoy@geos.unicaen.fr
Université Perpignan
certain@univ-perp.fr
brs@univ-perp.fr
Université d'Angers (BIAF)
helene.howa@univ-angers.fr
Université d'Aix-Marseille (CEREGE)
sabatier@cerege.fr
provansal@cerege.fr
Université Bordeaux 1 (EPOC)
p.bonneton@epoc.u-bordeaux1.fr
h.dupuis@epoc.u-bordeaux1.fr
d.michel@epoc.u-bordeaux1.fr
Université de Pau (LASAGEC)
stephane.abadie@univ-pau.fr
philippe.maron@univ-pau.fr
LOB Banyuls
guizien@obs-banyuls.fr
LEGI-INPG Grenoble
eric.barthelemy@hmg.inpg.fr
larroude@hmg.inpg.fr
herve.michallet@hmg.inpg.fr
Université de la Rochelle
echaumil@univ-lr.fr
SOGREAH
regis.walther@sogreah.fr
Ifremer
Pierre.Le.Hir@ifremer.fr ,
Florence.Cayocca@ifremer.fr
Université Lille 1
alain.trentesaux@univ-lille1.fr

Portugal
University of Minho (PT),
hgranja@dct.uminho.pt
coimbraneves@sapo.pt