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1 Introduction to numerical models

2 Dimensionless numbers

3 Shallow water Island wakes

4 Barotropic Island wake studies



Dmitri Boutov

Mestre em Ciências Geofísicas, especialidade
oceanografia, FC-UL

1-Introdução ao MATLAB

**O que é, para que serve, etc.
Como obter ajudas do matlab**

2-Matrizes e índices dos elementos de matrizes

3-Operadores e funções

4-Leitura e gravação de dados / ficheiros

5-Gráficos e visualização de dados

6-Figuras: criar, gravar e exportar

7-Programação em Matlab

**Linguagem Matlab
Exercícios simples**

8-Trabalho final

Referências:

[www.cct.uema.br/Cursos OnLine/MatDiscreta/intmatl.pdf](http://www.cct.uema.br/Cursos_OnLine/MatDiscreta/intmatl.pdf)

<http://www.ieeta.pt/~vieira/MyDocs/MatlabNumInstante.pdf>



Machiel Bos

PhD, University of Liverpool
CIIMAR

Lecture 1: Introduction to Ocean Tides

theory:

Overview of tidal phenomena and some history
Explanation of Tidal Potential
Derivation of Shallow water equations

practical: simple tidal exercises (with or without OTPS)

Lecture 2: Advanced Ocean Tide Modelling

theory:

Self attraction and loading effects on ocean tides
Overview of other advances topics (dissipation, non-linearity, internal tides)

practical: compute tidal map of North Sea with OTPS without assimilation

Lecture 3: Tidal Assimilation

theory:

'Representer' method of Bennett
Examples of tidal assimilation research.

practical: compute a tidal map of the North Sea with assimilation of tide gauge data.



Angela Canas

M.Sc. Engenharia e Gestão de Tecnologia, IST-UTL

Coastal modelling

1. Relevance of coastal modelling

- a. Coastal zones demands/problems;
- b. The modelling answer;
- c. Modelling as forecasting;
- d. Operational modelling;

2. Creating your own coastal modelling application

- a. Definition of scope;
- b. Definition of processes to be modelled
- c. Definition of area of interest
- d. Modelling tool choice
- e. Techniques for coastal applications
- f. Modelling data requirements:
- g. Model validation
- h. Data assimilation

3. Schematic applications with MOHID Water

- a. MOHID GUI environment;
- b. MOHID GIS environment;
- c. boundary/initial conditions;
- d. Output formats;
- e. Running the model;
- f. Analyzing results.



EVALUATION PROCEDURE

- ❖ 20% Attendance: DO NOT try to sign for colleagues;
- ❖ 30% oral presentation about one theme (groups of 2-3 ok, all must speak); due 13-February-2009;
- ❖ 50% written report about the 3 main themes (include original codes on CD) due 27-February-2009:
 - ❖ Island wakes (Deep-ocean)
 - ❖ Tidal (barotropic) global model
 - ❖ Coastal modeling (MOHID)