VODA status and plan

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the VODA project

Variational Ocean Data Assimilation for multi-scale applications

VODA is currently:

- ► An ANR/COSINUS project
- ► A CNES/TOSCA project
- ► A Mercator-Océan PPR (?)
- ► Strong links to other projects

Partners:

- ► INRIA, CERFACS, LEGI, LOCEAN, LPO
- ► ECMWF, Mercator-Océan, MetOffice

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the VODA project

Variational Ocean Data Assimilation for multi-scale applications

- ▶ Aims at building a community of NEMOVAR users. It follows several actions at LEFE/ASSIM and GMMC (2006 - 2007).
- ▶ Use of NEMOVAR at different oceanic circulation scales.
- ▶ Contribute to the development of NEMOTAM and NEMOVAR.

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Workpackages - Milestones

- ▶ WP1 NEMOTAM
- ▶ WP2 Error Covariance and Observation Operator development
- ▶ WP3 Advanced Data Assimilation Strategies
- ▶ WP4 Applications, feasibility studies and preliminary assessments for key applications

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Workpackages - Milestones

- WP1 NEMOTAM
    - M1.1 First version (T0+12)
    - M1.2 Improved version(T0+24)
    - M1.3 "Final" version(T0+24)
- WP2 Error Covariance and Observation Operator development
- WP3 Advanced Data Assimilation Strategies
- WP4 Applications, feasibility studies and preliminary assessments for key applications

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Workpackages - Milestones

- ▶ WP1 NEMOTAM
- ▶ WP2 Error Covariance and Observation Operator development

> M 2.1.1 Implementation of the 1D implicit diffusion model (T0+6)
>
> M 2.1.2 implementation of the 2D implicit diffusion model (T0+18)
>
> M 2.2 Implementation of the ADT observation error model (T0+24)
>
> M 2.3 Implementation of the Lagrangian data obs op. (T0+18)

- ▶ WP3 Advanced Data Assimilation Strategies
- ▶ WP4 Applications, feasibility studies and preliminary assessments for key applications

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Workpackages - Milestones

- ▶ WP1 NEMOTAM
- ▶ WP2 Error Covariance and Observation Operator development
- ▶ WP3 Advanced Data Assimilation Strategies

    M3.1.1 Implementation of the Simplification Operator (T0+6)
    M3.1.2 Implementation of the progressive DA (T0+18)
    M3.2 Implementation of the weak constraint DA (T0+24)
    M3.3 SEEK in the inner loop (T0+12)

- ▶ WP4 Applications, feasibility studies and preliminary assessments for key applications

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Workpackages - Milestones

- ▶ WP1 NEMOTAM
- ▶ WP2 Error Covariance and Observation Operator development
- ▶ WP3 Advanced Data Assimilation Strategies
- ▶ WP4 Applications, feasibility studies and preliminary assessments for key applications

    M4.1, 4.2, 4.3 NEMOTAM and NEMOVAR for the reference configurations (T0+24)

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Workpackages - Deliverables

- ▶ WP1 NEMOTAM
- ▶ WP2 Error Covariance and Observation Operator development
- ▶ WP3 Advanced Data Assimilation Strategies
- ▶ WP4 Applications, feasibility studies and preliminary assessments for key applications

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Workpackages - Deliverables

- WP1 NEMOTAM

  D1.1 Documentation about a strategy for the dev of NEMOTAM (T0+6)
  D1.2 Documentation of the prototype (T0+12)
  D1.3 Documentation of the final version(T0+36)

- WP2 Error Covariance and Observation Operator development

- WP3 Advanced Data Assimilation Strategies

- WP4 Applications, feasibility studies and preliminary assessments for key applications

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Workpackages - Deliverables

- WP1 NEMOTAM

- WP2 Error Covariance and Observation Operator development

  D.2.1.2 Report on the 2D implicit diffusion model (T0+24)

  D 2.2 Report on the ADT observation error model (T0+24)

  D 2.3.1 Documentation of the Lagrangian data obs op. (T0+12)

  D 2.3.2 Demonstrator (twin exp) of the Lagrangian data obs op. (T0+24)

  D 2.3.2 Demonstrator (real data) of the Lagrangian data obs op. (T0+36)

- WP3 Advanced Data Assimilation Strategies

- WP4 Applications, feasibility studies and preliminary assessments for key applications

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Workpackages - Deliverables

- WP1 NEMOTAM
- WP2 Error Covariance and Observation Operator development
- WP3 Advanced Data Assimilation Strategies

  D3.1.1 Documentation and demonstrator of the Simplification Operator (T0+12)

  D3.1.1 Documentation and demonstrator of the progressive DA (T0+24)

  D3.2.1 Documentation weak constraint DA (T0+24)

  D3.2.2 Demonstrator weak constraint DA (T0+36)

  D3.3 Demonstrator of the SEEK in the inner loop (T0+18)

- WP4 Applications, feasibility studies and preliminary assessments for key applications

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Workpackages - Deliverables

- ▶ WP1 NEMOTAM
- ▶ WP2 Error Covariance and Observation Operator development
- ▶ WP3 Advanced Data Assimilation Strategies
- ▶ WP4 Applications, feasibility studies and preliminary assessments for key applications

    D4.1, 4.2, 4.3 report on DA with the reference configurations (T0+36)

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