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Federal Office of Meteorology and Climatology MeteoSwiss

COSMO Software: fieldextra

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COSMO GM

Fieldextra

Developments since last COSMO GM (1/3)

- **30.04.2012, release 10.5.2** — *~ 82k lines, COSMO GM 2012*
- 21.12.2012, release 11.0.0
- 15.02.2013, release 11.0.1
- 22.04.2013, release 11.0.2 — *~102k lines, COSMO GM 2013*
- **07.06.2013, release 11.1.0**

~ 2 FTE invested at MeteoSwiss

→ Important effort!

Fieldextra

Developments since last COSMO GM (2/3)

- **Main new features**
  - Shared memory **parallelism**
  - Consolidated **EPS** support

    (lagged ensemble, missing members…)
  - **More model configurations** fully supported

    (COSMO-RU, COSMO-RU-EPS, IFS-HRES, IFS-ENS, IFS-SEAS…)
  - Many **new operators**

    (geostrophic operators, interpolation on PV and theta surfaces…)
  - Support for **MOS** and **Kalman** corrections
  - **Simple tools** for common tasks

    (grins, fxcrop, fxconvert)

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Developments since last COSMO GM (3/3)

- **Environment**
  - Extended and consolidated **test environment**

    (multi-platforms, multi-compilers, multi-modes, multi-models)
  - **Version control** of full package

    (support extraction of any release of a past package)
  - Complete working installation at **ECMWF** and at **CSCS**
  - Improved **installation procedure** and gfortran support
- **User interface improvements**
- **Bug corrections, code improvements, optimizations**

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Roadmap (1/2)

- **Planned for 11.2.0, target for release date is October 2013**
  - Consolidate **GRIB 2** support

    (generalized height coord., tableVersion, COSMO coordination)
  - Consolidate support of **gridded observations**

    (radar, satellite)
  - Simplified usage of **dictionaries**
  - **…**

    (depending on needs and resources)

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Roadmap (2/2)

- **Planned for 11.3.0, target for release date is March 2014**
  - Add/consolidate support for :

    laf naming, **pseudo-satellite**, **multi-layers snow model**…
  - New tools **fxcompare** to compare two GRIB files,

    and **fxfilter** to extract specific fields from a GRIB file
  - **…**

    (depending on needs and resources)

Fieldextra
Current operational users

- **Core non-graphical NWP production tool at MeteoSwiss** *(status 2012)*
  - 15’000 products per day generated with fieldextra → **stable and reliable**
  - Products from COSMO-2, COSMO-7, COSMO-LEPS, PEPS, IFS
  - Test products from COSMO-1 (1062x774x80 !) and COSMO-E
  - Thresholds and regions based warnings for the Swiss government
- **COSMO-LEPS production at ECMWF**
- **FABEC production at DWD**
  - Derived both from COSMO-EU and IFS
  - Additional products for the German flight control
- **Other operational users**
  - NMA, RHM … **did I forget anybody?**

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Strategic considerations (1/2)

- A significant part of our time is spent **fighting against the tools** …

  … maybe the focus is too often on the deliverable and not on the tools?
- But high quality production tools are **expensive**
- However, we all have to solve **similar problems**

➢ **Share the *development* effort on a *small number* of well designed tools and interfaces.**

- **Can it be done? Or is it utopic? Fieldextra as test bed …**
- **No COSMO contribution to the development** of fieldextra yet
- **Many duplicated functionalities** at different places

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Strategic considerations (2/2)

- **Some propositions to intensify the collaboration**
  - Replace **prodgen** with fieldextra for COSMO-DE-EPS production at DWD
  - Use fieldextra as a front end to **VERSUS**, with a well defined interface (with possible extensions of fieldextra to work with observations)
  - Implementation of **NetCDF input** by the CLM community
  - Yearly **tutorial** open to the COSMO community, 2 full days ('bring your problems')
  - Build up of development capacity **outside** of MeteoSwiss

Feedback appreciated!