

ENACT

**ENHANCED OCEAN DATA ASSIMILATION
AND
CLIMATE PREDICTION**

EC FP5

Jan 2002 to Dec 2004

<http://www.lodyc.jussieu/ENACT/>

ENACT partners – who ?



Met Office

University of Reading (UREAD-ESSC)

Collecte Localisation Satellites (CLS)

European Centre for Research and Advanced Training in Scientific Computation (CERFACS)

Laboratoire d'Océanographie Dynamique et de Climatologie (LODYC)

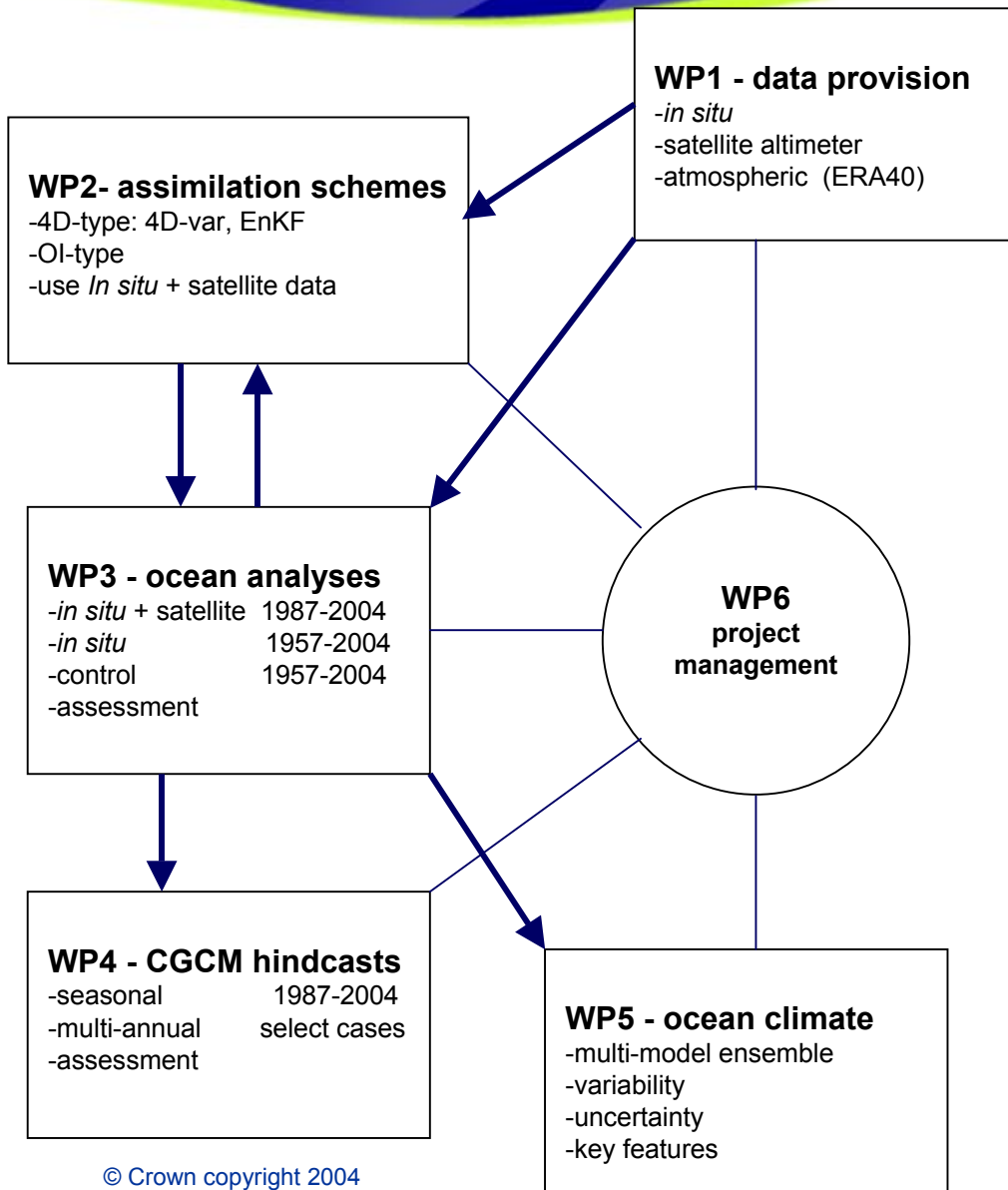
European Centre for Medium-Range Weather Forecasts (ECMWF)

Max Planck Institute for Meteorology (MPI)

The Royal Netherlands Meteorological Institute (KNMI)

Nansen Environmental and Remote Sensing Center (NERSC)

Istituto Nazionale di Geofisica e Vulcanologia (INGV)



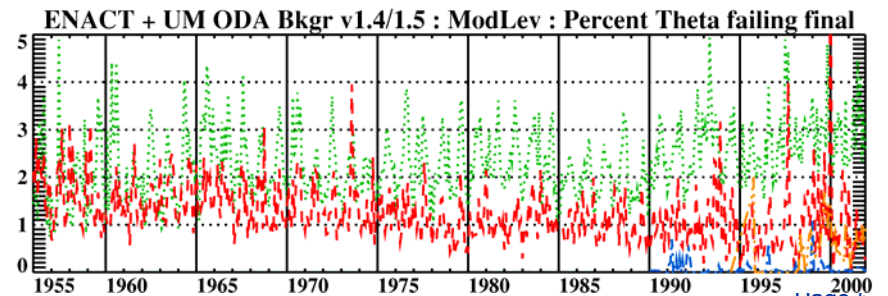
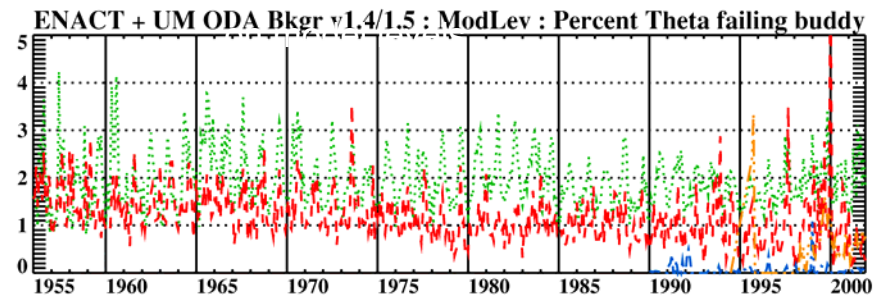
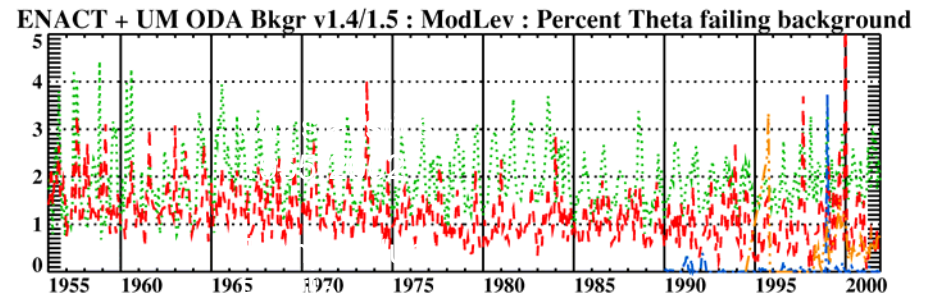
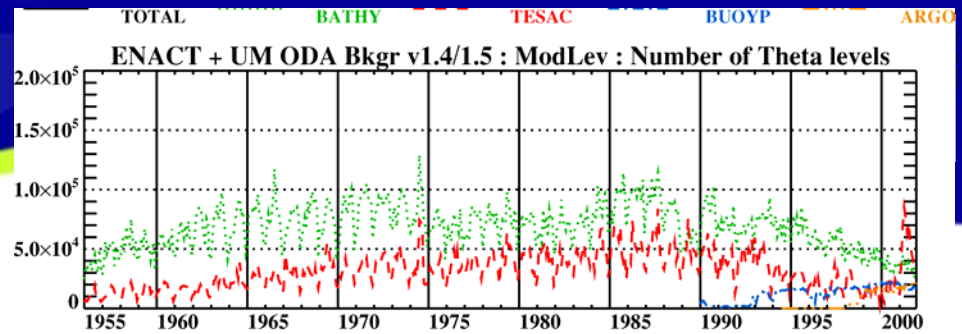
- Primarily an EU project to inter-compare ocean analysis systems
 - ‘OI’, 3D-var, 4D-var, EnKF
 - HOPE-E, HOPE-C, UM, OPA
- Analyses produced for ERA40 period using a common set of observations
- CGCM forecasts will be made to assess analyses, some out to 5 years
- project co-ordinator:
Met Office

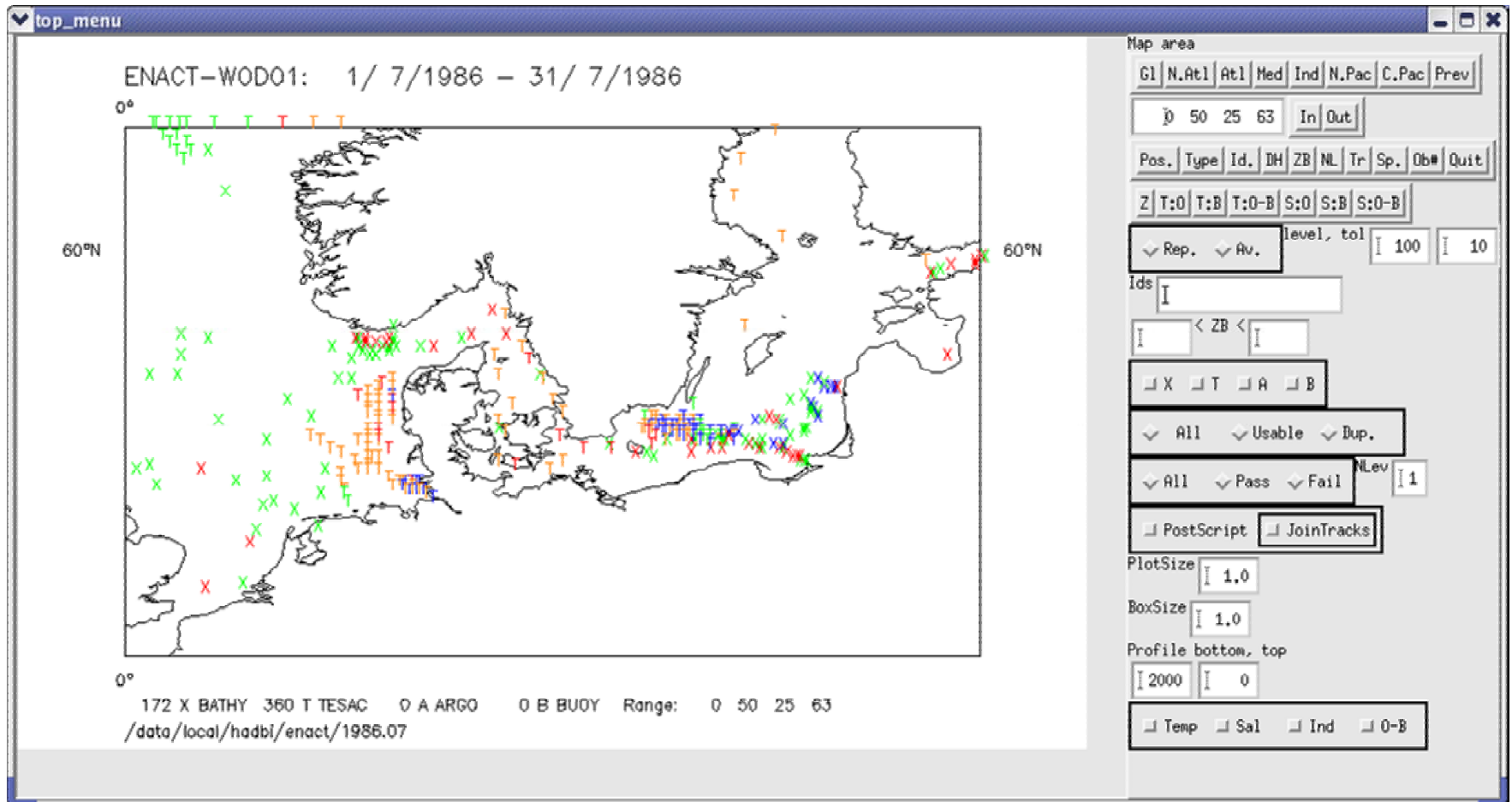
- high-quality processed observational datasets for ocean analysis
- *in situ* Temperature and Salinity 1957-2001 (MetOffice)
uniform quality control, NetCDF format
- altimeter-derived sea level (CLS)
gridded and along-track anomalies, 1987-1988, 1992-2004
(includes re-processed GeoSat)
absolute sea level (geoid)
- surface fluxes from ERA40 1957-2001 (ECMWF)
 - daily (and daily climatology)
 - calibrated to reduce precipitation bias

ENACT Ocean insitu data

QC statistics 1955-2002

Temperature profile observations on model levels





- state-of-the-art global ocean data assimilation systems using 3dvar, 4dvar, ensemble Kalman filter, OI-type methods (CERFACS, LODYC, MetO, ECMWF, KNMI, INGV, NERSC, MPIM)
- sets of ocean analyses extending over a 40 year period (see below) including archive of output on a common grid, ocean initial conditions for CGCM hindcasts
- individual and collective assessments of ocean analyses climatology, variability, verification, measures of uncertainty, available on LODYC website
- sets of hindcasts (MetO and ECMWF CGCMs)
 - 6-month range, quarterly in 1987-2001
 - 5-year range, select cases (e.g. 1964, 1994)

S1 = 1987-2001
S2 = 1962-2001
Sa = satellite period 1993-2001
C = control
T = temperature
S = salinity
A = altimeter sea level

centre	stream	data	scheme	OGCM
CERFACS	S1 S2	C, T C, T	3dvar , 4dvar 3dvar	OPA
LODYC	Sa	C, A	4dvar	OPA
INGV	S1 S2 Sa	C, T C, T C, T	OI	OPA OPAhigh
NERSC	S1	C, TSA	EnKF	OPA
ECMWF	S1 S2 Sa	C, T, TS C, TS C, TSA	OI	HOPE
KNMI	Sa	C, A	EnKF	HOPE
MPIM	Sa	C, A	3dvar	HOPE
MetO	S1 S2 Sa	C, TS C, TS C, TSA	OI	GloSea

