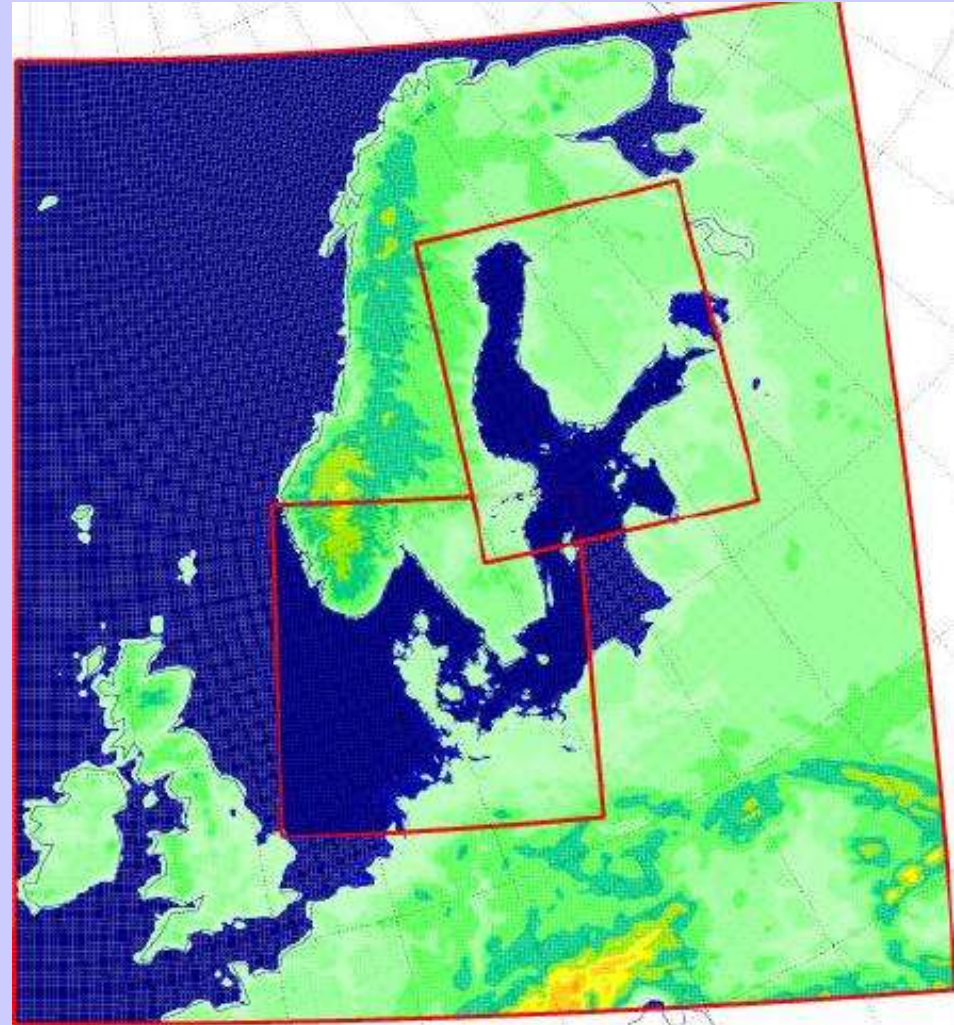# HIRLAM work with ALADIN and Road-map for collaboration

- HIRLAM activities with ALADIN 2004
  - Training course MF and ALADIN WS
  - Granted license for research in April
  - Implemented initial version at ECMWF with MF help
  - Learning and process
  - Interface HI physics
  - Setting up and coupling meso-scale areas
  - Setting up case period

- HIRLAM development 2005
  - Research AL dynamics + HI physics / AR physics
  - Operational HI 4D-VAR 15-20 km
  - Improved HI physics 10-20 km
  - Improved 3D-VAR and more RADAR and SAT
  - Boundary conditions

HIRLAM work with ALADIN in 2005

- Make experiments at 11 and 2.5 km

- Interface ALADIN-HI coupling-boundaries

- Interface HI physics to ALARO

- Introduce ALARO and AROME system

- Evaluate HI physics

- Compare with AROME

- Develop meso-scale diagnostics

HIRLAM research topics for the coming years

- HI physics improvements
- HI physics interfacing, 2005
- Meso-scale physics choices 2006-2007
- Synoptic scale 4D-VAR 2005-2007
- Meso-scale 3D-VAR 2005-2006
- Meso-scale 4D-VAR 2007-

- Meso-scale observations
  - radar winds 2005-
  - reflectivity 2006 -
  - GPS moisture 2005-
- Surface and SST assimilation
- Cloud imagery
- Large scale coupling
- Meso-scale validation
- Short range EPS / prob

Envisaged operational HIRLAM configurations

Year	Synoptic model	Synoptic DA	Synoptic EPS	Meso model	Meso DA	Meso EPS
2005	HI dyn + Hi Phy	HI 3D-VAR	EC + HI LAMEPS	Research AL dyn	Research HI 3D-VAR	
2006		HI 4D-VAR		Res AR/HI phys	Res AR/HI 3D-VAR	
2007						AL perturb
2008	AL dyn + HI phy		AL pert + HI model	AROME AR/HI phy	AR 3D-VAR Res 4D-VAR	
2009	AL dyn + ALAR phy	AL/HI 4D-VAR	AL pert + ALAR model			AR perturb

Estimated minimum staffing in HIRLAM research (minimum)

Year	Synoptic model	Synoptic DA	Synoptic / Meso EPS	Meso model	Meso DA	Systems/ Verification
2005	5	6	2	5	1	3
2006	4	5	2	5	2	4
2007	4	4	2	5	3	4
2008	4	3	1 / 1	6	3	4
2009	3	2	1 / 2	6	4	4
2010	2	2	1 / 2	7	5	4

staffing in HIRLAM of which ( ) on shared code

Year	Synoptic model	Synoptic DA	Synoptic / Meso EPS	Meso model	Meso DA	Systems/ Verification
2005	5	6	2	5 (5)	1	3
2006	4	5	2	5 (5)	2 (1)	4 (1)
2007	4 (1)	4 (1)	2	5 (5)	3 (1)	4 (2)
2008	4 (1)	3 (2)	1 / 1 (1)	6 (5)	3 (1)	4 (2)
2009	3 (2)	2 (2)	1 / 2 (2)	6 (5)	4 (2)	4 (3)
2010	2 (2)	2 (2)	1 / 2 (3)	7 (7)	5 (5)	4 (4)