

***REPORT ON EXPERIMENTS MADE WITH EXTERNALIZED  
SURFACE SCHEME***

Andrey Bogatchev, NIMH, Bulgaria

Supervisors

Patrick LE MOIGNE & Valery MASSON

Toulouse, 01.09.-30.09.2004

Part 5: Case studies, research subjects, Ph.D. works

## 1. EXPERIMENTS MADE WITH EXTERNALIZED SURFACE SCHEME

The first experiment for better learning the methodology for the using of the externalised surface scheme was to rerun HAPEX case using up to date version of the software.

The grafical presentation of results is stored in directory: ~/hapex/pic.

The next case is a date with snow precipitation for the region centered around the station 15575 – Dobrich, located in the nort-east part of Bulgaria with coordinates: 4334N 2751E and elevation 251 m.

The synop data for the station looks like that:

date	hh	T	Wdir	Wsped	Prcipitation amount (snow)
23	00	-9.4	330	12	3.0 *
	06	-8.8	330	14	5.0 **
	12	-5.7	330	6	4.0 *
	18	-6.4	320	4	8.0 **
24	00	-7.6	350	3	5.0 *
	06	-7.8	310	2	8.0 **
	12	-5.3	300	2	2.0 *
	18	-7.6	0	0	2.0 **
25	00	-8.4	0	0	2.0 *

\*- precipitation for the last 6 hours

\*\* - precipitation for the last 12 hours.

Forcing was prepared, using rerun of ALADIN-BG 48 hours forecast from 23 of January 00 UTC. The forcing domain contains 5x5 points with horizontal resolution 12 km centered around the station. Time step of forcing is 3600 s.

ASCII files with data form model output and the source of the small program for preparing the forcing file are located in directory ~/snow\_case/2300

Forcing files and the pictures with forsing field are stored in directory:

/home/bogatchev/force/CAPITOUL\_ext/forcing

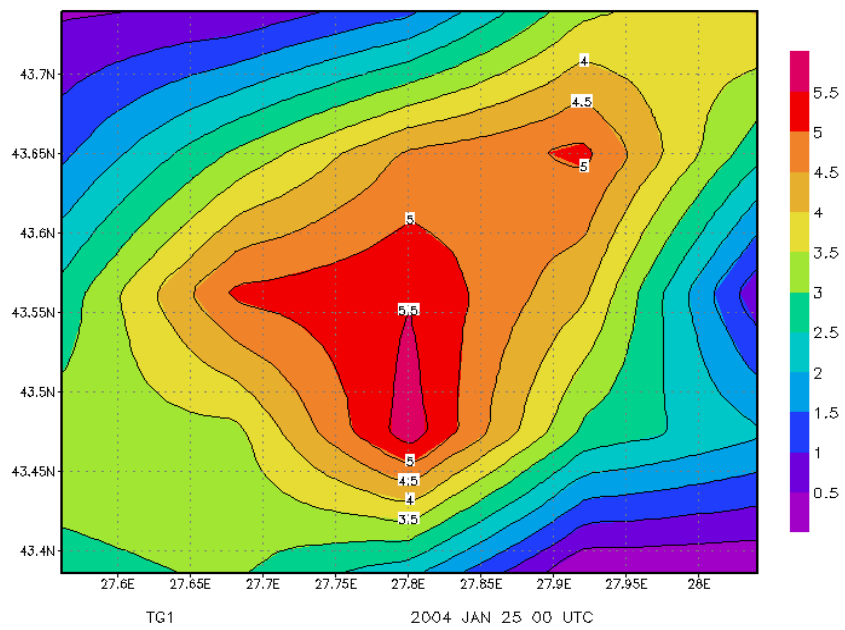
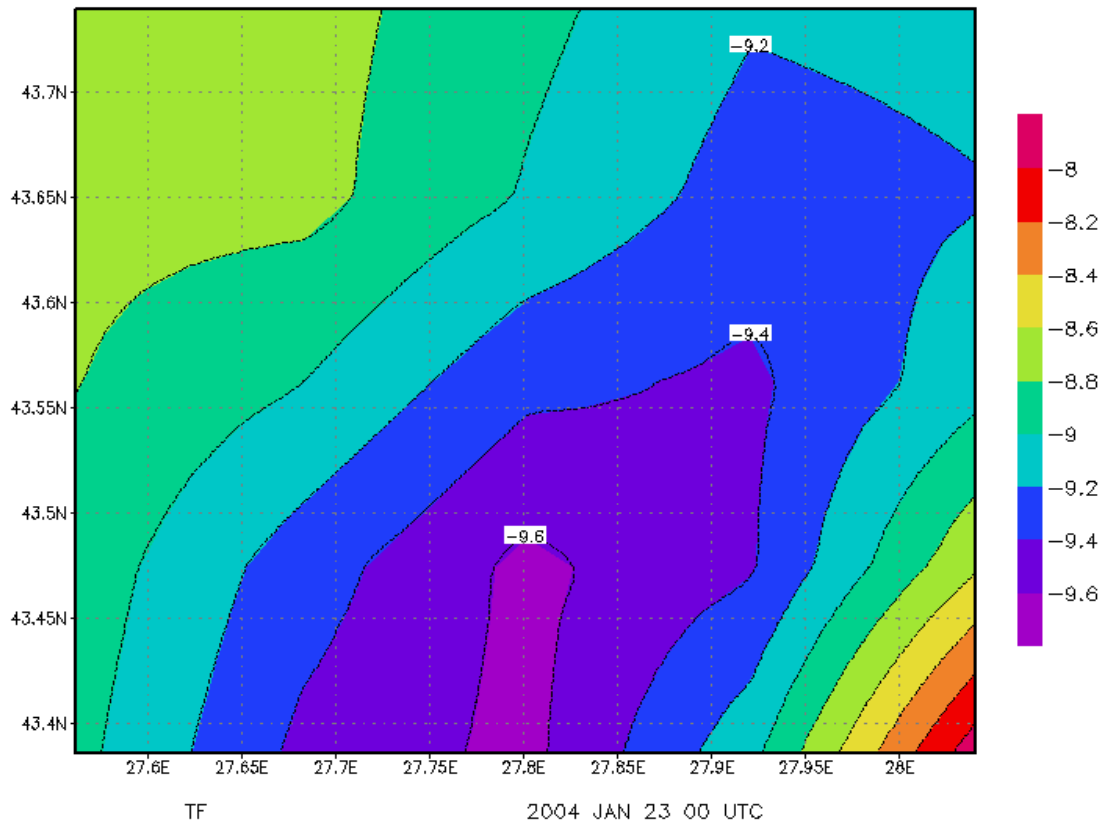
In fac the were two runs of externalised scheme with the same forcing file using the three layer snow scheme, and using the Douvill snow scheme.

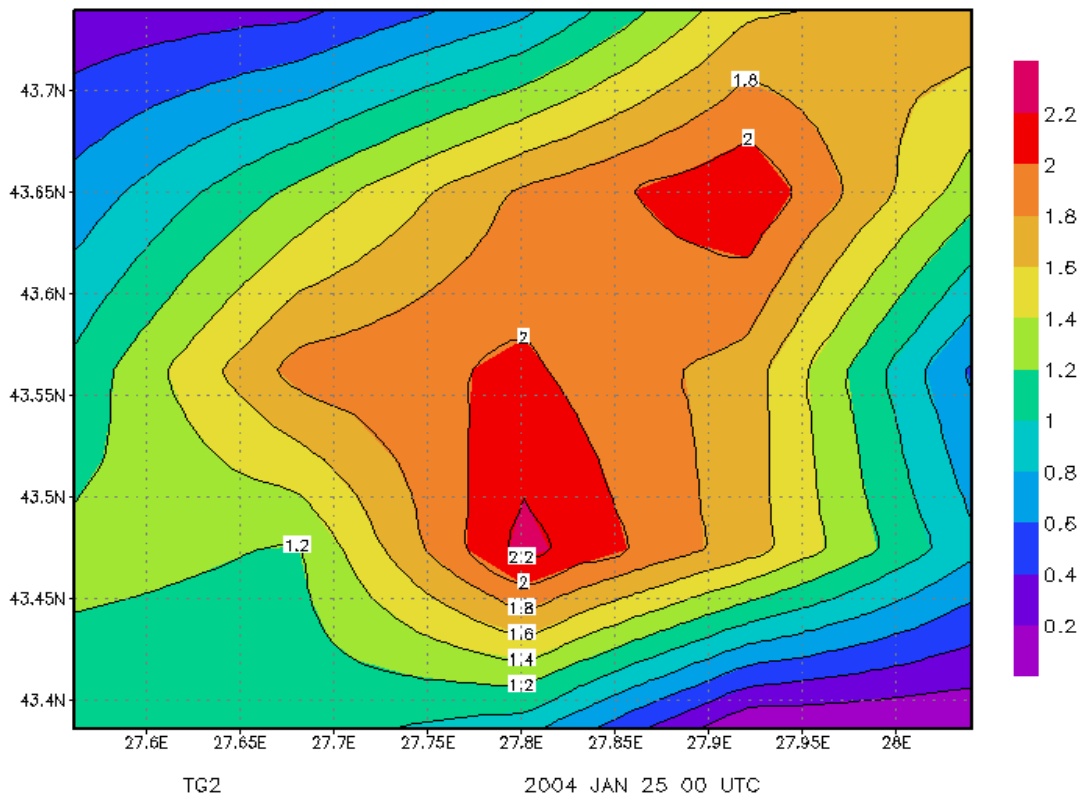
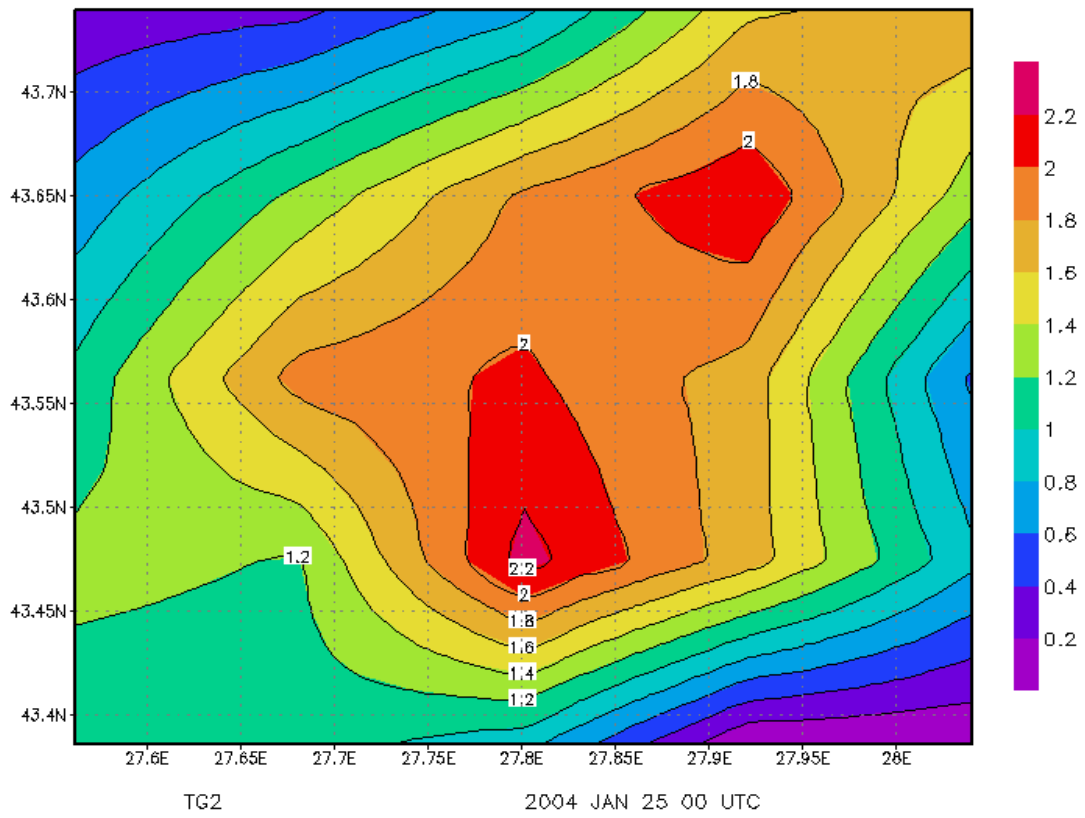
As one should expcct the results are different, due to the different possibilies of the snow schemes.

Grafical presentation of results together with the program for preparing GRADS data files, GRADS data description file and scripts fo rgenerating the picures are stored in subdirecories pic\_2300, pic\_23d95 and pic\_diff of directory /home/bogatchev/rundir.

The user name is bogat and passw: Stage0904.

On following pictutes are shown the initial temperature field from forcing file, and the differences of temperatures for the forst level between two schemes in the beginning an at the end of period.





## CONTENTS

1. <u>EXPERIMENTS MADE WITH EXTERNALIZED SURFACE SCHEME</u> .....	2
---	---