



Scénarios Climatiques Adaptés aux zones de Montagne: Phénomènes extrêmes, Enneigement et Incertitudes

Programme année 2

Rappel: les partenaires

- ▣ P1= GAME (GMGEC+GMME+CEN)
- ▣ P2=LMD
- ▣ P3=CERFACS
- ▣ P4=LGP
- ▣ P5=LGGE

Tâche 1 : Downscaling dynamique

	ALADIN	LMDZ	MAR
1961-1990	reference	reference	reference
2021-2050	A1B, A2, B1	A1B IPSL-SST, A1B CNRM-SST	A1B
2071-2100	A1B, A2, B1	A1B IPSL-SST, A1B CNRM-SST	A1B

- ▣ **D1.1 seven 30-year simulations with ALADIN (M12 P1)**
- ▣ **D1.2 five 30-year simulations with LMDZ (M24 P2)**
- ▣ **D1.3 three 30-year simulations with MAR (M24 P5)**

Tâche 2 : Downscaling statistique

- D2.1: new statistical downscaling algorithm adapted to mountain areas (M12, P3)
- D2.2: statistical downscaling of ALADIN runs (M18, P1)
- D2.3: statistical downscaling of CMIP3 runs (M18, P3)
- D2.4: development of the new quantile-quantile mapping technique, comparison dynamical-statistical downscaling and influence of horizontal resolution in LSC predictors response to climate change (M24, P3)
- D2.5: statistical downscaling of LMDZ runs (M30, P1)
- D2.6: statistical downscaling of MAR runs (M30, P1)
- D2.7: representation of critical feedbacks in statistical and dynamical downscaling (M30, P3)

Tâche 3: Base de données haute résolution

- ▣ mean temperature
- ▣ minimum temperature
- ▣ maximum temperature
- ▣ mean relative moisture
- ▣ mean specific moisture
- ▣ mean wind velocity
- ▣ maximum wind velocity
- ▣ rainfall
- ▣ snowfall
- ▣ long-wave downward radiation
- ▣ short-wave downward radiation
- ▣ snow amount (at different elevations)

- ▣ D3.1 web site of the project (M12, P1)
- ▣ D3.2 database with outputs of the project (M36, P1)

Tâche 4: Changement de couverture neigeuse sur la France

- D4.1 preparing ISBA-ES to run on multi-elevation SAFRAN grid from RCM 6-hourly output (M12, P1)
- D4.2 ISBA-ES simulations with CMIP3 scenarios (M 24, P1)
- D4.3 ISBA-ES simulations with ALADIN scenarios (M 24, P1)
- D4.4 ISBA-ES simulations with LMDZ scenarios (M 33, P1)
- D4.5 ISBA-ES simulations with MAR scenarios (M 33, P1)

Tâche 5 : Changement de couverture de neige par massif sur les Alpes

- D5.1 preparing CROCUS version and choice of the scenarios to be processed (M12, P1)
- D5.2 CROCUS simulations with CMIP3 scenarios (M 24, P1)
- D5.3 CROCUS simulations with ALADIN scenarios (M 24, P1)
- D5.4 CROCUS simulations with LMDZ scenarios (M 33, P1)
- D5.5 CROCUS simulations with MAR scenarios (M 33, P1)
- D5.6 MEPRA analysis (M36, P1)

Tâche 6 : Impact du changement climatique sur les coulées de débris

- D6.1 Definition, calibration and application to downscaled scenarios of probability model (M33, P4)
- D6.2 Risk quantification of network interruption by debris flows (M33, P4)
- D6.3 Publication of the results in peer review journals (M36, P4)

Tâche 7 : Evaluation des incertitudes

- D7.1: First assessment of the various sources of uncertainties involved in climate projections (for 2021-2050 and 2071-2100) for mountain areas (M30, P3)
- D7.2: Identification of key mechanisms responsible for the spread in climate variables (M30, P3)
- D7.3: Second assessment of the epistemic uncertainty using process-based metrics and resampling projection-distribution technique (M36, P3)