

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

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)
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- 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)

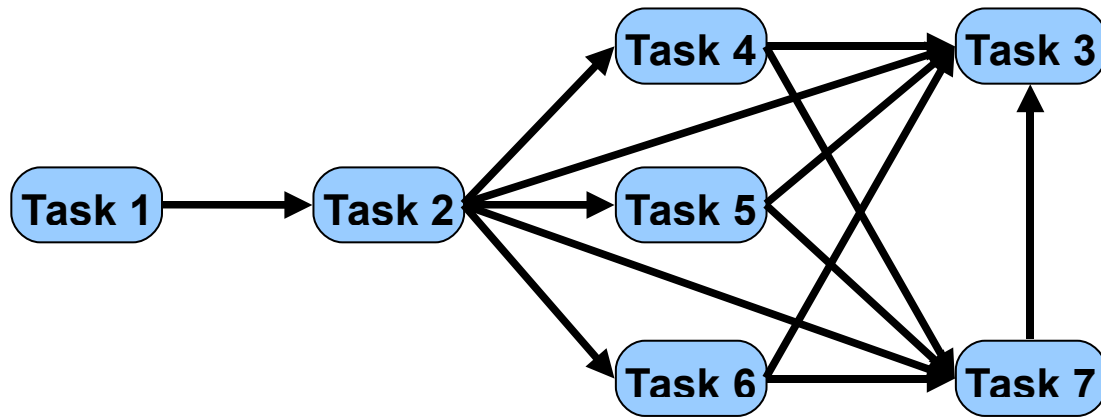
Tâche 6 : Impact du changement climatique sur les coulées de débris

- 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)

Flux entre les tâches



Partenaire 1

GAME	Name	First name	Status	Domain	mm	role in the project
PI	Déqué	Michel	IPC	Numerical modeling	12	project coordination, analyses
	Somot	Samuel	IPC	Numerical modeling	5	ALADIN simulations
	Braun	Alain	ITM	computing	8	project database and web page
	Ribes	Aurélien	IPC	Statistics	3	downscaling of RCM simulations
	Martin	Eric	IPC	Surface processes	5	ISBA-ES modeling
	Durand	Yves	IPC	Meteorology	3	SAFRAN downscaling
	Etchevers	Ingrid	ITM	Meteorology	6	SAFRAN downscaling
	Etchevers	Pierre	IPC	Snow modeling	3	CROCUS modeling
	Giraud	Gérald	ITM	Snow modeling	6	CROCUS modeling, MEPRA downscaling
	Mérindol	Laurent	TSM	Meteorology	6	SAFRAN downscaling
	Navarre	Jean-Pierre	IPC	Snow modeling	3	MEPRA downscaling

+post doc Toulouse (12 mois)
 +post doc Grenoble (24 mois)

Partenaire 2

LMD	Name	First name	Status	Domain	mm	role in the project
PI	Li	Laurent	DR2	Climate modeling	7.2	Simulation and analysis
	Musat	Ionela	IE	Climate modeling	7.2	Simulation and analysis
	Casado	Alberto	Ph.D student	Climate modeling	7.2	Simulation and analysis

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+post doc (12 mois)

Partenaire 3

CERFA CS	Name	First name	Sts	Domain	mm	role in the project
PI	Terray	Laurent	DR	Climatology	15	analyses, uncertainties and process based metrics
	Pagé	Christian	IR	Downscaling	9	Statistical downscaling
	Maisonnave	Eric	IR	Computing optimization	3	Numerical algorithms optimization and porting

+post doc 12 mois

Partenaire 4

LGP	Name	First name	Status	Domain	mm	role in the project
PI	Jomelli	Vincent	CR1	Geomorphology	7.2	Impacts on magnitude-frequency, Hazard analysis
	Grancher	Delphine	IE	Statistics	7.2	Stochastic models (neural network, logit), relationships between debris flows and climate
	Brunstein	Daniel	IR	SIG	3.6	SIG conception
	Leone	Frédéric	MCF	Risk analysis	7.2	Economic and functional vulnerability of highway and railway networks

+doctorant (18 mois)
+AI (16 mois)

Partenaire 5

LGGE	Name	First name	Status	Domain	mm	role in the project
PI	Gallée	Hubert	DR	Regional Climate Modeling	15	MAR modeling, analysis of results
	XX	XX	PhD student	alpine climate modeling	24	Physical disaggregation of precipitation and surface energy balance at the kilometric scale

+post doc (12 mois)