Compte-rendu intermédiaire

Projet ANR- Blanc SIMI 5-6 021 01

CLIMSLIP (Climate impact of short-lived pollutants and methane in the Arctic)

Programme Blanc 2011

Ce document est à remplir par le coordinateur en collaboration avec les partenaires du projet. Il doit être transmis par le coordinateur aux échéances prévues dans les actes attributifs :

1. *à l'ANR*
2. *aux pôles de compétitivité ayant accordé leur label au projet.*

L'ensemble des partenaires doit avoir une copie de la version transmise à l'ANR.

Il doit être accompagné d'un résumé public du projet mis à jour, conformément au modèle associé à ce document.

Ce modèle doit être utilisé uniquement pour le(s) compte(s)-rendu(s) intermédiaire(s) défini(s) dans les actes attributifs de financement, hors rapport T0+6 pour lequel il existe un modèle spécifique. Il existe également un modèle spécifique au compte-rendu final.

A IDENTIFICATION

Acronyme du projet	CLIMSLIP
Titre du projet	Climate impact of short-lived pollutants and methane in the Arctic
Coordinateur du projet (société/organisme)	Kathy Law/ Gerard Ancellet (LATMOS)

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Date de début du projet	01 decembre 2011
Date de fin du projet (conventions)	30 novembre 2015
Site web du projet, le cas échéant	http://www.latmos.ipsl.fr/index.php/fr/tact/themes-de-recherche/climslip

B LIVRABLES ET JALONS

Quand le projet en comporte, reproduire ici le tableau des jalons et livrables fourni au début du projet. Mentionner l'ensemble des livrables, y compris les éventuels livrables abandonnés, et ceux non prévus dans la liste initiale.

N°	Intitulé	Nature*	Date de fourniture			Partenaire
			Prévue initialement	Replanifiée	Livrée	
1	Measurement of CO, O3, aerosols and other parameters over Siberia during a 1-week period (YAK campaign)	données	M6		x	**P3**
2	Lidar instrument implementation on the YAK Russian aircraft	prototype	M6	M24		**P1,**P3
3	Analysis of CO, O3 and aerosols measurements from YAK campaigns	Article Berchet et al.	M12	M36	partiel	**P1,**P3
4	Evaluation of fire injection height parameterisations	jalon	M12	M24		**P5**
5	Implementation of improved fire parameterization in LMDz- INCA		M15	M24		**P5**
6	Analysis of CH4 measurements, and assessment of potential CH4 sources and sinks		M15	M24		**P3**
7	Aerosol cloud interaction campaign on Mt Zepplin	données	M12		x	**P2**
8	Aerosol and cloud data analysis from ASTAR, POLARCAT and SORPIC aircraft missions.	Articles Delanoe et al. Jouan et al.	M12	M24	partiel	**P2,**P1
9	Analysis of aerosol optical properties and altitude for radiative transfer model analysis	données	M12		x	**P1,** P2
10	Model calculations of radiative forcing	jalon	M18		x	**P1**
11	BC campaign at Mt zeppelin and NyAlesund	données	M6		x	**P4**
12	Chemical analysis of snow and aerosol samples	données	M12	M24	partiel	**P4**
13	Upgrade of the snowpack model	logiciel	M12		x	**P4**
14	Improved parameterization of BC deposition to the snow	jalon	M18	M36		**P4**
15	Initial conditions for Lagrangian calculations using model simulations	données	M6		x	**P1,**5
16	Lagrangian model runs--> changed by Regional model analysis	Article Thomas et al.	M12		x	**P1**
17	long-range transport based on data collected in surface sites → changed by Satellite data analysis (Calipso, IASI)	Pommier et al. sur IASI, 1 article en preparation sur CALiPSO	M18		x	**P1**
18	joint analysis of ozone/CO/meteorological parameter		M18	M36	partiel	**P1**
19	Quantification of stratospheric air mass transport using meso-scale model		M18	M36		**P1**
20	Initial conditions for Polar-WRF from simulations of LMDZ-INCA model → changed by initial conditions from American model	données	M6		x	**P1**, P5

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N°	Intitulé	Nature*	Date de fourniture			Partenaire
			Prévue initialement	Replanifiée	Livrée	
21	Simulations of the Arctic atmosphere composition for gases (CH4, CO, O3, NOx, ..) and aerosols using LMDZ-INCA	données	M6	M18	x	**P5**, P1
22	Assessment of the transport and mixing processes of pollutants (trace gases and aerosols) using an analysis of the semi-Lagrangian tracer distribution in regional model	Article Thomas et al.	M12		x	**P1**, P5
23	Evaluation of model simulations of trace gases by comparisons to satellite (IASI) and in situ measurements – contribution to POLMIP		M15	M24	partiel	**P5**
24	Global simulation using LMDz-INCA source attribution tracers to quantify pollutant contributions to Arctic		M15	M18		**P5**
25	Assessment of the regional model cloud/radiation module		M18	M36		**P1**, P2

* jalon, rapport, logiciel, prototype, données, …

C RAPPORT D'AVANCEMENT

C.1 OBJECTIFS INITIAUX DU PROJET

Maximum 10 à 20 lignes.

The project aims at improving our understanding of the chemical composition of the Arctic and at the assessment of the impact of short climate forcers (aerosol, ozone, methane) on the Arctic climate

Task 1 (resp. K. Law/G. Ancellet): Coordination

Task 2 (resp. S. Turquety/JD Paris) Boreal sources: YAK aircraft campaign in Siberia + model simulation with LMDzINCA

T**ask 3 (resp. O. Jourdan) Aerosol-Cloud interaction:** Zeppelin ground based campaign and satellite data analysis (CLOUDSAT, CALIOP),

T**ask 4 (resp. F. Ravetta) Aerosol radiative forcing:** development of a radiative transfer model and analysis in colloboration with Univ. of Berlin (link with task6)

Task 5 (resp. HW Jacobi) BC in snow: Zeppelin ground based campaign, and development of the snowpack model

T**ask 6 (resp. G.Ancellet/K.Law) Aerosol and ozone plume processing:** analysis of past and new aircraft campaign , data from surface site using models and multi parameter analysis (O3, aerosol, CO, meteorological variables)

T**ask 7 (resp. JC Raut/I. Pison) Modelling :** Regional (POLAR WRF) + Global model (LMDzINCA)

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C.2 TRAVAUX EFFECTUES ET RESULTATS ATTEINTS SUR LA PERIODE CONCERNEE

Maximum 1 page. Travaux et résultats obtenus pendant la période concernée, conformité de l'avancement des travaux avec le plan initialement prévu. Prévision de travaux pour la (les) prochaine(s) période(s).

WP2: Due to the unanticipated opportunity of a campaign external funding in 2012 by a private sponsor, the campaign to be funded by CLIMSLIP is planned for summer 2013 instead of summer 2012. The first aircraft campaign over Siberia was therefore organized in July/August 2012. Partial interpretation of results has been delivered (O3) on a previous (2010) campaign, and analysis of the 2012 campaign is ongoing. Notably novel greenhouse gas measurements obtained using a new CRDS PICARRO instrument are revealing the strong impact of forest fire on the atmospheric burden in CH4. A specific methodology for the calculation of emissions of trace gases and aerosols from biomass burning has been prepared, and will be included in the LMDz-INCA global modeling for the campaign analyses.

WP3: Instruments (Polar Nephelometer, FSSP-100, CPI and Nevzorov Probe) usually dedicated to airborne cloud measurements were installed at Mount Zeppelin station (Ny-Alesund, Svalbard) from March to May 2012. This combination of instruments allowed for the simultaneous characterization of the microphysical and optical properties of mixed phase boundary layer clouds, ice precipitation and blowing snow episodes. These measurements were processed and merged with the observations of aerosol physical properties performed routinely at the station and constitute a high quality dataset to investigate how changes in arctic aerosols properties influence cloud microphysical characteristics. First results suggest that arctic mixed phase clouds are ubiquitous during this period but that the thermodynamic phase is highly dependent of the spatial scale of study. Precipitation is characterized by pristine ice crystals (mainly stellars and sideplanes) with a typical size of 500µm whereas blowing snow exhibit irregular shapes with smaller sizes (200µm). These microphysical patterns can be clearly seen in the measured single scattering properties. With respect to aerosol- mixed phase cloud interactions, two different cases are apparent. When the air masses sampled at the station were characterized by “aged” aerosols (concentration of 100-150 cm^{-3} and small fraction of aerosols with sizes lower than 100nm), the activation fraction was close to 100%, with an activation diameter ranging from 100nm to 200nm. Lower activation fractions and diameters (50% and 50-100nm, respectively) were obtained when air masses were characterized by more “fresh” aerosols (concentration around 200 cm^{-3}) with a larger fraction of small aerosols.

WP4: The new version of the 1D radiative transfer code MOMO has been achieved and validated. It is now possible to compute radiative forcin or heating rates from 0.2 to 200 micrometers, with a high spectral and vertical resolution (PhD thesis of Lionel Doppler). This code has been applied to a Polarcat case study (March 31 2008). An optical closure has been done, combining lidar and in situ measurements, in order to choose the input parameters for radiative transfer simulation with MOMO. Given the low optical thickness of the studied aerosol layer, radiative forcing and heating rates estimates are small, and mostly linked to short wave radiations.

WP5: Atmospheric black carbon (BC) concentrations were observed during 1-month long field experiments at Ny-Alesund, Spitzbergen in March / April 2012. Measurements were made at around 500 m altitude at Zeppelin Station using a Single Particle Soot Photometer (SP2) and an aethalometer at sea level at Corbel Station. The SP2 instrument delivers information on single particles, while the aethalometer measures every five minutes the total absorption due to all absorbing aerosols. A further aetahlometer was running continuously in parallel to our instruments at Zeppelin Station. A comparison between the detected BC concentrations indicates that the overall time series agree quite well, while the values of the SP2 instrument were constantly below the aethalometer data. Concentration differences between Zeppelin and Corbel Station will be used to determine the removal of atmospheric BC by clouds and precipitating snow and the dry deposition of BC to the snow.

To examine the impact of the BC on the optical properties of the snow, more than 300 snow samples were collected at different locations and altitudes in and around Ny-Alesund. The sampled snow included fresh snow and surface snow and snow pits at Ny-Alesund, Corbel Station, and on different glaciers. The winter season 2011/2012 in Ny-Alesund was characterized by very peculiar meteorological and snow conditions. A warm period in January / February with record-high precipitation of rain caused a complete melting of the seasonal snowpack at low sea level. In contrast, at higher altitudes the seasonal snow pack remained intact. All snow samples were analyzed for major and minor ionic components indicating large inputs of sea salt due to the marine conditions. Profiles of major anions determined in the snow pit will be used to characterize different sources for the impurities as well as post-depositional processes in the snowpack. The SP2 instrument used for the atmospheric measurements at Zeppelin station will also be employed for the determination of BC in the collected snow samples in order to make the concentrations in the atmosphere and in the snow directly comparable. The different snow types collected will be analyzed to determine the fate of the BC in the snow after deposition. The CROCUS model including a physically-based parameterization of the radiative transfer in the snow considering absorbers like BC has been developed and

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C.3 DIFFICULTES RENCONTREES ET SOLUTIONS

Maximum 10 à 20 lignes. Difficultés éventuelles rencontrées et solutions de remplacement envisagées ex : impasse technique, abandon d'un prestataire, maîtrise des délais, maîtrise des budgets. Faut-il revoir le contenu du projet ? Faut-il revoir le calendrier du projet ?

WP2 : The YAK campaigns are going very well but with several changes in the project work plan. The very good thing is the possibility to work with 3 campaigns instead of only one funded by the ANR project, the bad news is the difficulty to deal with administrative issues regarding the installation of new instruments in Russia. The lidar installation is then delayed to the last 2014 campaign. A good collaboration has however been established with the Russian colleague to operate the French lidar on the ground in 2013 and to work with the Russian scientist on data collected with the Russian lidar.

WP3 : The observation set up used to perform in situ measurements was impacted by the wind speed and wind direction encountered at the station. The intercomparison of cloud parameters measured by the FSSP and Nephelometer resulted in significant discrepancies linked to the wind speed and wind direction. In order to understand the instruments responses to changes in wind characteristics, two ground based campaigns (January 2013, May 2013) were carried out at the Puy de Dome station. Instruments were installed in the chalet wind tunnel and on the roof (same configuration as in mount Zeppelin). Measurements show that the particle size distribution of water droplets is significantly modified when the wind speed is higher than 10m/s and when the alignment of the probes differs from the wind direction by more than 30°. These first results are taken into account for the interpretation of the Mount Zeppelin cloud measurements.

WP4 Given the limited size of the Polarcat data set available to constrain 1D radiative transfer modelling with MOMO, more emphasis will now be given to comparison of WRF-Chem and MOMO simulations of the radiative forcing induced by aerosol layers in the Artic (link to WP6).

WP5 : The analysis of BC aerosol origin started, not completed yet, will be continued during Ph.D. thesis of Marco Zanatta. The analysis of BC in snow with SP2 instrument is not yet performed. The parameterization of BC deposition not yet attempted because BC concentrations in snow needed

WP7 : Inverse modelling of CH4 fluxes over Siberia, data on surface concentrations of methane in Siberia are collected from partner institutes (NIES, Japan; MPI, Germany). Some delays were encountered in the transfer of the data due to the absence of clear data policy at these partners. Data are now available and the difficulty is not expected to lead to any significant delays for this task. The work on global modelling and pyro-convection has been delayed in time due to the difficulty of finding a good candidate for the post-doctoral appointment. Yoann Long has only started his post-doctoral work in April 2013 and he is currently working on the model set up with the updated version of the LMDz-INCA global model.

C.4 FAITS ET RESULTATS MARQUANTS

En quelques lignes pour chaque fait ou résultat marquant. Cet élément pourrait donner lieu à communication, après accord du coordinateur du projet.

WP3 : In *Delanoë et al.*, 2013, we illustrate the high potential of RALI data combined with in situ measurements for evaluating CloudSat, CALIPSO and DARDAR cloud products during POLARCAT. The instrumental set up used for the ground based cloud based measurements combined with the ceilometer measurements enabled us to characterize the microphysical and optical properties of low altitude mixed phase clouds, precipitation and blowing snow episodes.

WP4 An article describing the methodology and the usefulness of the extension of MOM in thermal infrared, jointly written by LATMOS and FUB researchers, has been written and will be submitted to JQRST in June 2013.

WP5 : During the field experiments, we performed parallel measurements of atmospheric BC in Ny-Alesund using an aethalometer and SP2. To our knowledge, these measurements represent the first comparison of the two instrument types in the Arctic. These instruments deliver different information on the properties of the BC particles that will be used together with future BC measurements in the snow also using the SP2 instrument to study the origin, behavior, and fate of BC particles in the Arctic.

WP6 : WRF-Chem regional model simulations were used to study ozone production in boreal fire and anthropogenic plumes transported from North America to the Arctic (Greenland) (Thomas et al., ACP, 2013). It was found that, during the 4-7 day transit time from emission regions, that, on average anthropogenic plumes produced 6 ppbv ozone with around 3 ppbv from boreal fire. Much larger enhancements were found in individual plumes. These results suggest, in particular, that boreal fires do produce ozone in contrast to certain previous studies. Regional model results are now being compared to global model results (inc. LMDz-INCA) as part of the international POLARCAT model inter-comparison project (POLMIP).

WP7 : Regional modeling with WRF-Chem model has underlined that pollution plumes are often located near stratospheric intrusions highlighting the need for good representation of mixing processes and dynamics in the model. In general, ozone levels are well reproduced despite some discrepancies in precursor distributions near the fire suggesting incorrect emissions. Methane emissions inversions at scales down to 40km x 40km close to the available stations were carried out for the beginning of the growing season 2010 (May-June). These inversions are based on a new method allowing a better specification of the error statistics critical in any inversion system. The method and some preliminary results (e.g., the ability of the system to detect the beginning of the growing season) were presented at EGU General Assembly, Vienna (Berchet et al.).

C.5 REUNIONS DU CONSORTIUM (PROJETS COLLABORATIFS)

Date	Lieu	Partenaires présents	Thème de la réunion
13/14 Dec 2011	Latmos Paris	Tous	Demarrage
21/22 Nov.	Latmos Paris	Tous	Resultats campagnes 2012
11/12 Oct	Paris	LSCE, LATMOS, LMD	LIA franco-sibérien
29/30 May	Paris	LATMOS, LMD (+ others)	POLMIP meeting

C.6 COMMENTAIRES LIBRES

Commentaires du coordinateur

Commentaire général à l'appréciation du coordinateur, sur l'état d'avancement du projet, les interactions entre les différents partenaires…

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…

Commentaires des autres partenaires

Éventuellement, commentaires libres des autres partenaires

…

Question(s) posée(s) à l'ANR

Éventuellement, question(s) posée(s) à l'ANR…

…

D VALORISATION ET IMPACT DU PROJET DEPUIS LE DEBUT

Cette partie rassemble des éléments cumulés depuis le début du projet qui seront suivis tout au long de son avancée, et repris dans son bilan final.

D.1 PUBLICATIONS ET COMMUNICATIONS

Citer les publications résultant du projet en utilisant les normes habituelles du domaine. Si la publication est accessible en ligne, préciser l'adresse. L'ANR encourage, dans le respect des droits des co-auteurs et des éditeurs, à publier les articles résultant des projets qu'elle finance dans l'archive ouverte pluridisciplinaire HAL : http://hal.archives-ouvertes.fr/

***Attention** : éviter une inflation artificielle des publications, mentionner uniquement celles qui résultent directement du projet (postérieures à son démarrage, et qui citent le soutien de l'ANR et la référence du projet).*

Liste des publications multipartenaires (résultant d'un travail mené en commun)

International

Revues à comité de lecture

1. Comparison of airborne in-situ, airborne radar-lidar, and spaceborne radar-lidar retrievals of polar ice cloud properties sampled during the POLARCAT campaign, Delanoe J., Protat A., Jourdan O., Pelon J., Papazzoni M., Dupuy R., Gayet J.-F., Jouan C. J. of Atmos. and Oceanic Techn. 30, 1, (2013) 57-73 - hal-00730535.
2. Anthropogenic and forest fire pollution aerosol transported to the Arctic: observations from the POLARCAT-France spring campaign Quennehen B., Schwarzenboeck A., Matsuki A., Burkhart J.F., Stohl A., Ancellet G., Law K.S. Atmos Chem and Physics 12, 14 (2012) 6437-6454 - hal-00668101 -
3. Analysis of IASI tropospheric O3 data over the Arctic during POLARCAT campaigns in 2008 Pommier M., Clerbaux C., Law K. S., Ancellet G., Bernath P., Coheur P.-F., Hadji-Lazaro J., Hurtmans D., Nédelec P., Paris J.-D. et al Atmos. Chem. and Phys. 12, 16 (2012) 7371-7389 - hal-00655136 -
4. Assimilation of IASI satellite CO fields into a global chemistry transport model for validation against aircraft measurements Klonecki A., Pommier M., Clerbaux C., Ancellet G., Cammas J.-P., Coheur P.-F., Cozic A., Diskin G.S., Hadji-Lazaro J., Hauglustaine D.A. et al Atmos. Chem. and Physics 12, 10 (2012) 4493-4512 - hal-00647994 -

Ouvrages ou chapitres d'ouvrage

1.
2.

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	Communications (conférence)	1. Jacobi, H.-W., O. Jourdan, C. Bernard, J. Cozic, R. Dupuy, G. Febvre, C. Gourbeyre, G. Guyot, J.-L. Jaffrezo, P. Laj, A. Schwarzenboeck, and M. Zanatta, Impact of short-lived pollutants on the regional climate of the Arctic, 8èmes Journées Scientifiques du Comité National Français des Recherches Arctiques et Antarctiques, Brest, France, May 2012. 2.
France	**Revues à comité de lecture**	1. 2.
	Ouvrages ou chapitres d'ouvrage	1. 2.
	Communications (conférence)	1. 2.
Actions de diffusion	**Articles de vulgarisation**	1. 2.
	Conférences de vulgarisation	1. 2.
	Autres	1. 2.

Liste des publications monopartenaires (impliquant un seul partenaire)

International	**Revues à comité de lecture**	1. Pollution transport from North America to Greenland during summer 2008, Thomas J. L., Raut J.-C., Law K. S., Marelle L., Ancellet G., Ravetta F., Fast J.D., Pfister G., Emmons L.K., Diskin G.S. et al Atmos Chem and Physics 13, 7 (2013) 3825-3848 - hal-0 2. Berchet A., J.-D. Paris, G. Ancellet, K. S. Law, A. Stohl, P. Nédélec, M. Yu Arshinov, B. D. Belan, P. Ciais. Tropospheric ozone over Siberia in spring 2010: remote influences and stratospheric intrusion. Tellus B, in press, 2013 3. On the relationship between Arctic ice clouds and polluted air masses over the north slope of Alaska in April 2008, Jouan C., Pelon J., Girard E., Ancellet G., Blanchet J.P., Delanoe J. Atmos Chem and Physics Discussions 13, 2 (2013) 4331-4389 - hal-00789168 4. Towards better error statistics for atmospheric inversions of methane surface fluxes. Berchet, A., I. Pison, F. Chevallier, P. Bousquet, S. Conil, M. Geever, T. Laurila, J. Lavrifç, M. Lopez, J. Moncrieff, J. Necki, M. Ramonet, M. Schmidt, M. Steinbacher, and J. Tarniewicz, 2013: Atmos. Chem. Phys. Discuss., 13, 3735-3782, doi:10.5194/acpd-13-3735-2013. 5. On the consistency between global and regional methane emissions inferred from SCIAMACHY, TANSO-FTS, IASI and surface measurements, Cressot, C., F. Chevallier, B. Bousquet, C. Crevoisier, E. J. Dlugokencky, A. Fortems-Cheiney, C. Frankenberg, R. Parker, I. Pison, R. A. Scheepmaker, S. A. Montzka, P. B. Krummel, L. P. Steele,and R. L. Langenfelds, 2013: Atmos. Chem. Phys. Discuss., 13, 8023-8064, doi:10.5194/acpd-13-8023-2013 6. Low surface ozone in Siberia, Engvall Stjernberg, A.-C., A. Skorokhod, J.-D. Paris, N. Elansky, P. Nédélec, A. Stohl,Tellus B, 64, 11607, DOI:10.3402/tellusb.v64i0.11607, 2012 [link] 7. Characterization of Arctic ice cloud properties observed during ISDAC Jouan C., Girard E., Pelon J., Gultepe I., Delanoé J., Blanchet J.-P. Journal of Geophysical Research 117 (2012) D23207 - hal-00769659 -
	Ouvrages ou chapitres d'ouvrage	1. 2.

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	Communications (conférence)	1. Jacobi, H.-W., Y. Arnaud, J. Cozic, P. Ginot, J.-L. Jaffrezo, H. Gallée, P. Laj, S. Lim, J. Petersen, M. Ménégoz, M. Zanatta, P. Bonasoni, P. Cristofanelli, P. Stocchi, G. Verza, and E. Vuillermoz, Development of a snowpack model to study the impact of black carbon, Alpine Glaciology Meeting, Grenoble, France, February 2013.
		2. Jacobi, H.-W., M. Ménégoz, and H. Gallée, Development of a detailed snowpack model to study the impact of black carbon on the seasonal snow, International Symposium on Seasonal Snow and Ice, Lahti, Finland, May 2012.
		3.
France	**Revues à comité de lecture**	1.
		2.
	Ouvrages ou chapitres d'ouvrage	1.
		2.
	Communications (conférence)	1. H.-W. Jacobi, Interaction between snow and atmosphere: Interplay of physical and chemical processes, Invited seminar at the Institute for Meteorology and Geophysics, University Innsbruck, Austria, 30 October 2012
		2.
Actions de diffusion	**Articles de vulgarisation**	1.
		2.
	Conférences de vulgarisation	1.
		2.
	Autres	1.
		2.

D.2 AUTRES ELEMENTS DE VALORISATION

Les éléments de valorisation sont les retombées autres que les publications. On détaillera notamment :

- *brevets nationaux et internationaux, licences, et autres éléments de propriété intellectuelle consécutifs au projet.*
- *logiciels et tout autre prototype*
- *actions de normalisation*
- *lancement de produit ou service, nouveau projet, contrat,…*
- *le développement d'un nouveau partenariat,*
- *la création d'une plate-forme à la disposition d'une communauté*
- *création d'entreprise, essaimage, levées de fonds*
- *autres (ouverture internationale,..).*

Ce tableau détaille les brevets nationaux et internationaux, licences, et autres éléments de valorisation consécutifs au projet, du savoir-faire, des retombées diverses en précisant les partenariats éventuels. Voir en particulier celles annoncées dans l'annexe technique.

Liste des éléments. Préciser les titres, années et commentaires	
Brevets internationaux obtenus	1.
	2.
Brevet internationaux en cours d'obtention	1.
	2.
Brevets nationaux obtenus	1.
	2.
Brevet nationaux en cours d'obtention	1.
	2.
Licences d'exploitation (obtention / cession)	1.
	2.
Créations d'entreprises ou essaimage	1.
	2.
Nouveaux projets collaboratifs	1. Cooperation between LGGE and F. Obleitner (University Innsbruck, Austria) regarding exchange of meteorological and snow physical data for the Kongsvegen glacier including a collaboration concerning snow modeling
	2. Collaboration between France (LSCE, LATMOS) and Russia on airborne and ground based measurements of trace gases and aérosols.
	3. New collaborations as part of POLMIP with PNNL (USA) – model simulations of black carbon

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Colloques scientifiques	1. 2.
Autres (préciser)	1. 2.

D.3 PERSONNELS RECRUTES EN CDD (HORS STAGIAIRES)

Ce tableau dresse le bilan du projet en termes de recrutement de personnels non permanents sur CDD ou assimilé. Renseigner une ligne par personne embauchée sur le projet quand l'embauche a été financée partiellement ou en totalité par l'aide de l'ANR et quand la contribution au projet a été d'une durée au moins égale à 3 mois, tous contrats confondus, l'aide de l'ANR pouvant ne représenter qu'une partie de la rémunération de la personne sur la durée de sa participation au projet.
Les stagiaires bénéficiant d'une convention de stage avec un établissement d'enseignement ne doivent pas être mentionnés.

Des données complémentaires sur le devenir professionnel des personnes concernées seront demandées à la fin du projet. Elles pourront faire l'objet d'un suivi jusqu'à 5 ans après la fin du projet.

Identification				**Avant le recrutement sur le projet**			**Recrutement sur le projet**			
Nom et prénom	Sexe H/F	Adresse email (1)	Date des dernières nouvelles	Dernier diplôme obtenu au moment du recrutement	Lieu d'études (France, UE, hors UE)	Expérience prof. antérieure (ans)	Partenaire ayant embauché la personne	Poste dans le projet (2)	Date de recrutement	Durée missions (mois) (3)
Olofson Frans,	H	frans.olofson@gmail.com	23/5/2013	PhD	Universite Gothenburg Suede	2	LAMP	IR	01/10/2012	5
Guyot Gwennolé,	H	G.Guyot@opgc.univ-bpclermont.fr,	23/5/2013	M2	Universite Blaise Pascal Clermont Ferrand	Stage M2	LAMP	IE	01/01/2012	9
ZANATTA, Marco	H	marco_za@hotmail.it	23/05/13	M2	(Thésard depuis 01/10/2012, co-tutelle LGGE et Paul Scherrer Institute, Suisse)		LGGE	AI	01/01/12	1

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REA, Geraldine	F	geraldine.rea@lmd.polytechnique.fr	28/05/13	M2	Universite Pierre et Marie Curie	Stage M2	LMD	IE	01/07/2012	1
LONG, Yoann	H	Yoann.long@lmd.polytechnique.fr	28/05/13	PhD	Universite Blaise Pascal Clermont Ferrand		LMD	IR	01/04/13	12

Aide pour le remplissage

(1) Adresse email *: indiquer une adresse email la plus pérenne possible*
(2) Poste dans le projet *: post-doc, doctorant, ingénieur ou niveau ingénieur, technicien, vacataire, autre (préciser)*
(3) Durée missions *: indiquer en mois la durée totale des missions (y compris celles non financées par l'ANR) effectuées ou prévues sur le projet*

Les informations personnelles recueillies feront l'objet d'un traitement de données informatisées pour les seuls besoins de l'étude anonymisée sur le devenir professionnel des personnes recrutées sur les projets ANR. Elles ne feront l'objet d'aucune cession et seront conservées par l'ANR pendant une durée maximale de 5 ans après la fin du projet concerné. Conformément à la loi n° 78-17 du 6 janvier 1978 modifiée, relative à l'Informatique, aux Fichiers et aux Libertés, les personnes concernées disposent d'un droit d'accès, de rectification et de suppression des données personnelles les concernant. Les personnes concernées seront informées directement de ce droit lorsque leurs coordonnées sont renseignées. Elles peuvent exercer ce droit en s'adressant l'ANR (http://www.agence-nationale-recherche.fr/Contact).

D.4 ÉTAT FINANCIER

Donner un état indicatif de la consommation des crédits par les partenaires. Indiquer la conformité par rapport aux prévisions et expliquer les écarts significatifs éventuels.

Nom du partenaire	Crédits consommés (en %)	Commentaire éventuel
Latmos (partner 1)	57	Report depense en frais de mission pour 2014 (campagne Russie). Recrutement du post doc repoussé en 2014.
LAMP (partner 2)	68	
LSCE (partner 3)	48	The spent half represents the funds spent for the 2013 aircraft campaign over Siberia. The remaining half is currently being engaged for the hiring of a post doc and calibration material as planned.
LGGE (partner 4)	58	Money spent on field measurements and for the CDD
LMD (partner 5)	52	Paiement CDD (inclus crédits engagés) et matériel informatique

E ANNEXES EVENTUELLES

Compte-rendu intermédiaire