

APPLICATION FOR CONSENT TO CONDUCT MARINE SCIENTIFIC RESEARCH
IN AREAS UNDER NATIONAL JURISDICTION OF
UNITED KINGDOM

Date : 07/01/2008

1 - GENERAL INFORMATION

1.1. Cruise name and/or number : *DISPAMER on the research vessel Côtes de la Manche*

1.2. Sponsoring institution :

Name : IRSN Institute of Radioprotection and Nuclear Safety
Laboratoire de Radioécologie de Cherbourg-Octeville (LRC)
Address : rue Max Pol Fouchet BP10 50130 Cherbourg Octeville
Phone : (33) 2 33 01 41 00 Fax : (33) 2 33 01 41 30
Director : Mr Dominique Boust

1.3. Scientist in charge of the project :

Name : Olivier Connan
Address : IRSN , rue Max Pol Fouchet BP10 50130 Cherbourg Octeville
Phone : (33) 2 33 01 41 08 Fax : (33) 2 33 01 41 30
Email : Olivier.connan@irsn.fr

1.4. Scientist from United Kingdom involved in the planning of the project :

None

1.5. Submitting officer:

Name : Olivier Quédec
Address : Ifremer Centre de Brest - Secteur Programmation Flotte
B.P. 70 - 29280 Plouzané
Phone : 33 (0)2.98.22.44.43 Fax : 33 (0)2.98.22.44.55
Email : olivier.quedec@ifremer.fr

2 - DESCRIPTION OF THE PROJECT

2.1. Nature and objectives of the project :

The objectives of this project are to study the phenomena of atmospheric dispersion of a gas above the sea. For that purpose, sampling and measurement of a tracer, the ^{85}Kr will be made. This radionuclide are rejected by the nuclear reprocessing plant of AREVA NC La Hague (North Cotentin, France : 49.67°N ; 1.87°W). We propose to measure this radionuclide above the Western English Channel, between 5km of emission point to approximatively 200 km.

These data will be used to validate operational models used by the various national authorities in case of incident on industries situated on the littoral border, or in case of incident implying atmospheric discharges above the sea (shipwrecks).

2.2. Relevant previous or future research cruises :

none

2.3. Previously published research data relating to the project :

Bonnardot F., Lac C., Camail C., Connan O., Maro D., Hébert D., Rozet M. (2005). PERLE: An operational meso-scale dispersion modelling system for accidental release. Initiative on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes. Sissi, Crète, 17-20 Octobre 2005.

Connan O., Maro D., Hébert D., Rozet M. (2005). Dispersion atmosphérique d'un gaz traceur en milieu urbain. - Campagne CAPITOUL, mars et juillet 2004. Rapport DEI/SECRE n°2005-12.

Connan O., Maro D., Germain P., Hébert D., Rozet M., Lac C., Camail C., Bonnardot F., (2005). A study of atmospheric dispersion in urban environments through release of SF_6 passive tracer: comparison of the experimental results with 3 Gaussian models (Doury, Pasquill and Pasquill–Urban. Proceeding of the thirteenth international conference on modelling, monitoring and management of air Pollution, Air Pollution XIII, Cordoba, 15-18 may 2005, 369-377.

Connan O., Maro D., Hébert D., Rozet M., Checiak B., Solier L. (2006). Contribution to reducing uncertainties regarding the dry deposition velocities of fine aerosols: Study case of a prairie (description of experimental methods and comparison with models). Proceeding of the fourteenth international conference on modelling, monitoring and management of air Pollution, 22-25 may 2006, New Forest, UK, 555-564.

Delatte D., (2004). Contribution à l'étude de la dispersion atmosphérique d'un polluant à méso échelle. Rapport IRSN, 69 pp.

Lac C., Bonnardot C., Camail C., Connan O., Maro D., Hébert D., Rozet M., (2007) Atmospheric dispersion experiment during CAPITOUL to evaluate an operational dispersion modelling system. Meteorology and Atmospheric Physics. Submitted.

Maro D., Baron Y., Germain P., Crabol B., Hébert D., Solier L. (1999). Utilisation du krypton 85 rejeté dans l'environnement de la Hague comme outil d'étude de la dispersion atmosphérique – Institut de Protection et de Sécurité Nucléaire. Rapport DPRE/SERNAT/99-14, 21 pp.

Maro D., Baron Y., Crabol B., Germain P., Clotilde V., Hébert D., Solier L. (2000) Comparaison des modèles gaussiens de dispersion atmosphérique de Doury, de Pasquill et Caire avec les résultats des mesures de krypton 85 réalisées autour de l'usine de retraitement des combustibles irradiés de La Hague, Institut de Protection et de Sécurité Nucléaire, Rapport DPRE/.SERNAT.

Maro D., Germain P., Hébert D., Solier L., Rozet M., Leclerc G., Le Cavelier S. (2002). Krypton 85 : A tool for investigation near field atmospheric dispersion for elevated emissions around La Hague spent fuel nuclear reprocessing plant. Proceedings of 8th Int. Conf. On Harmonisation within Atmospheric Dispersion Modelling for Regulatory purposes. Sofia, Bulgaria, 14-17 October 2002, 138-143 pp.

Pasquill F. (1974) Atmospheric Diffusion, 2nd edition, Ellis Horwood Ed., Londres.

Renouf M., Connan O, 2006. Mise au point de la mesure du Krypton dans l'air par chromatographie en phase gazeuse couplée à un spectromètre de masse (CPG-SM). Rapport IRSN/DEI/SECRE/2006-17.

Van dop H, Addis R, Fraser G, Girardi F, Graziani G, Inoue Y, Kelly N, Klug W, Kulmala A, Nodop K and Pretel J. (1998). ETEX: A European tracer experiment; observations, dispersion modelling and emergency response . Atmospheric Environment, 32, 24, 4089-4094.

Vollmer MK, Weiss RF, (2002). Simultaneous determination of sulphur hexafluoride and chlorofluorocarbons in water and air. Marine chemistry, 78, 137-148

3 - METHODS AND MEANS TO BE USED

3.1. Particular of vessel

Name: RV/ Côtes de la Manche
Nationality: French
Owner: CNRS/INSU
Operator: DT. INSU (Mr E. Alessandrini), BP 330, 83507 LA SEYNE SUR MER
Overall length: 24.90m
Maximum draught: 3.60m
Net tonnage: none
Gross tonnage: 144.36 tons b.
Propulsion: Diesel 1300CV at 1650 rpm
Cruising speed: 12 knots
Maximum speed: 12 knots
Call sign: FQBE
Method and capability of communication (including telex, frequencies):
BLU-1605-4000KHz
VHF RT 2048-156-174 MHz
Name of master:
Number of crew: 7
Number of scientists on board: 8

3.2. Aircraft or other craft to be used in the project :

none

3.3. Particulars of methods and scientific instruments :

Types of samples and data	Methods to be used	Instruments to be used
Air sampling	B5 bottle under pressure	Boat air kompressor
⁸⁵ Kr real time measurement	Air sampling by laboratory pump	Beta detector EGG LB111

3.4. Indicates whether harmful substances will be used :

No

3.5. Indicate whether drilling will be carried out :

No

3.6. Indicate whether explosives will be used :

No

4 - INSTALLATIONS AND EQUIPMENTS

Details of installations and equipments (dates of laying, servicing, recovery, exact locations and depth)

No equipment will be left at sea. All experiments are pumping air above the boat by laboratory pumps

5 - GEOGRAPHICAL AERAS

5.1. Indicate geographical areas in which the project is to be conducted (with reference in latitude and longitude) :

The region of study will be connected to the meteorological conditions and winds during the period of campaign. The maximal zone which will be covered is represented in the chart (cf 5.2) with the for extremities points:

North East : 1°E ; 51°N
South East : 1°E ; 50°N

North West : 5°W ; 50°N
South West : 5°W ; 49°N

5.2. Attach chart(s) at an appropriate scale showing the geographical areas of the intended work and, as far as practicable, the positions of intended stations, the tracks of survey lines, and the locations of installations and equipment :

There will be no fixed points (stations), the boat will be continually in road



Location of the zone to be investigated

6 - DATES

6.1 Expected dates of first entry into and final departure from the research area of the research vessel :

entry date : 27/09/2008

departure date : 03/10/2008

6.2 Indicate if multiple entry is expected :

Yes, depending on weather conditions, we may be required to enter and leave British waters several times during the period

7 - PORTS CALLS

7.1. Dates and names of intended ports of call in United Kingdom.

Theoretically, none port call are scheduled. However, in case of problems we may requested permission to access the following ports

Alderney : Braye harbour

Guernsey : St Peter Port

Jersey : St Helier

7.2. Any special logistical requirements at ports of call:

No (mainly permutation of scientific team and equipment)

7.3. Name/Address/Telephone of shipping agent (if available)

8 - PARTICIPATION

8.1. Extent of which United Kingdom will be enabled to participate or to be represented in the research project :

Participation of an observer or an active scientist from United Kingdom is welcome.

8.2. Proposed dates and ports for embarkation/disembarkation :

start	date : 27/09/2008	Port of Cherbourg (France)
end	date : 03/10/2008	Port of Cherbourg (France)

9 - ACCESS TO DATA, SAMPLES AND RESEARCH RESULTS

9.1. Expected dates of submission to United Kingdom of preliminary reports which should include the expected dates of submission of the final results :

January 2009

9.2. Proposed means for access by United Kingdom to data and samples :

Data files will be available on request.

9.3. Proposed means of making research internationally available :

Publications in international scientific papers.

ANNEX

List of the scientific team

Olivier Connan

(IRSN-LRC : rue Max Pol Fouchet BP10 50130 CHERBOURG OCTEVILLE, FRANCE)

Denis Maro

(IRSN-LRC : rue Max Pol Fouchet BP10 50130 CHERBOURG OCTEVILLE, FRANCE)

Didier Hébert

(IRSN-LRC : rue Max Pol Fouchet BP10 50130 CHERBOURG OCTEVILLE, FRANCE)

Luc Solier

(IRSN-LRC : rue Max Pol Fouchet BP10 50130 CHERBOURG OCTEVILLE, FRANCE)