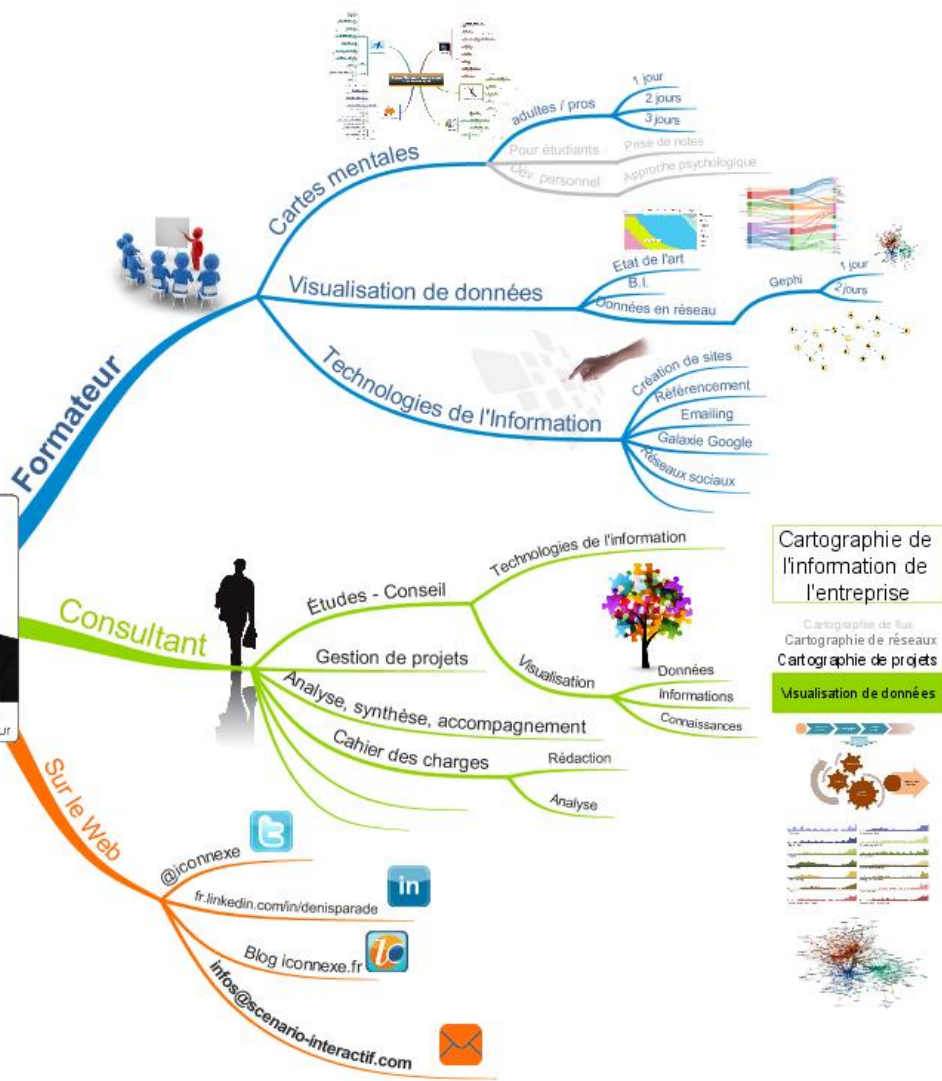
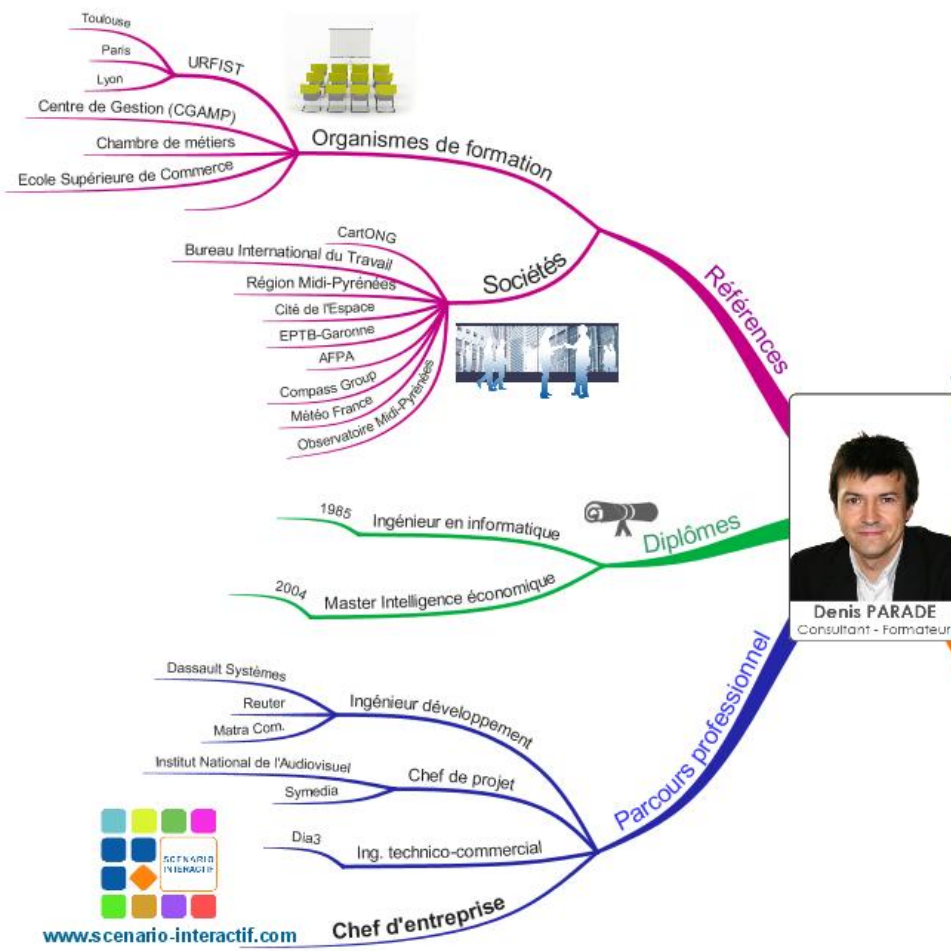




Visualiser les collaborations  
entre différents laboratoires,  
équipes et universités

Denis Parade  
Scénario Interactif



**Cartographie de l'information de l'entreprise**

Cartographie de flux  
Cartographie de réseaux  
Cartographie de projets

**Visualisation de données**



# Le client

L'Observatoire Midi-Pyrénées

**MERCI** à Williams Exbrayat

## Objectifs du projet

- Recenser la production scientifique d'une unité de recherche sur une période donnée
- Aider au pilotage stratégique de cette unité en faisant émerger des réseaux de collaborations



# Procédure mise en œuvre

- Collecte des références bibliographiques à partir du Web Of Science et export vers EndNote : 80% des résultats
- Ajout des références manquantes par les chercheurs : 20%
- Implémentation de métadonnées par les documentalistes, par ex : Impact factor, nom d'équipe
- Édition de liste/tableau via EndNote
- Validation de l'ensemble des données par les directions



# Mon rôle

Proposer des représentations graphiques afin de synthétiser et comprendre les interactions entre les chercheurs/organisations issus de la base de données bibliographiques avec des contraintes :

- de temps ;
- d'organisation ;
- de budget.

# Extrait de la BDD après export CSV

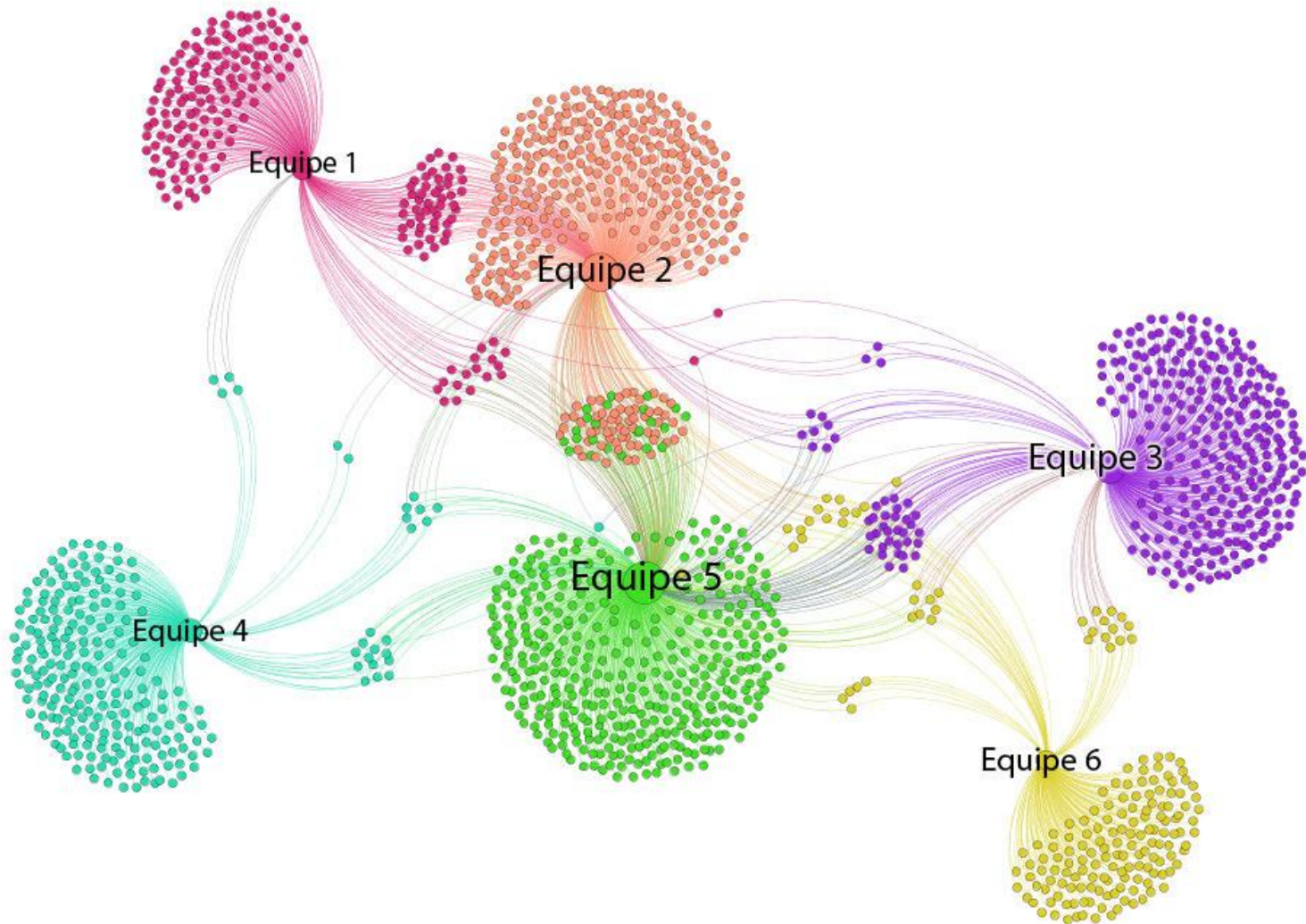
Auteurs	Année	Titre	Laboratoire	Equipe(s)	ratio	Journal	act Fa	Discipline	Mots clés	Author Address
M. Ablain, A. Cazenave, G. Valle	2009	A New Asses				Ocean Science	2.164	Meteorology & Atmospheric Sciences; Oceanography	ARGO; CLIMATE; SEA-LEVEL; STERIC HEIGHT	[Ablain, M.; Valladeau, G.; Guir
G. Alory and G. Meyers	2009	Warming Of				Journal of Climate	4.362		TROPICAL PACIFIC; INTERANNUAL VARIABILITY; OVERTURNING CIRCULATION; S	[Alory, G.] Lab Etud Geophys &
M. Amalvict, P. Willis, G. Woppe	2009	Isostatic Stat				Polar Research	1.622		TERRESTRIAL REFERENCE FRAME; LAST GLACIAL MAXIMUM; SEA-LEVEL RISE	[Amalvict, M.; Hinderer, J.] ULP
T. Arsouze, J. C. Dutay, F. Laca	2009	Reconstructr				Biogeosciences	3.754	Ecology; Geosciences, Multidisciplinary	RARE-EARTH-ELEMENTS; LAST GLACIAL MAXIMUM; NEODYMIUM ISOTOPIC CO	[Arsouze, T.; Lacan, F.; Jeande
A. Atmadipoera, R. Molcard, G. I	2009	Characteristic				Deep-Sea Research Part I-Oceanogr	2.816	Oceanography	INDIAN-OCEAN; PACIFIC; SEAS; THERMOCLINE	
N. Bergeot, M. N. Bouin, M. Diar	2009	Horizontal An				Journal of Geophysical Research-Solid	3.174	Geochemistry & Geophysics	HEBRIDES-ISLAND-ARC; RELATIVE PLATE MOTIONS; 1999 AMBRYM EARTHQUA	[Bergeot, N.; Diamant, M.; Balli
E. Berthier, R. Le Bris, L. Mabile	2009	Ice Wastage				Journal of Geophysical Research-Earth	3.174	Geosciences, Multidisciplinary	RECENT GLACIER CHANGES; NEW-ZEALAND; MOUNTAIN GLACIERS; TASMAN C	[Berthier, E.; Mabileau, L.; Rem
S. Biancamaria, P. D. Bates, A.	2009	Large-Scale C				Journal of Hydrology	2.964	Engineering, Civil; Geosciences, Multidisciplin	ISBA; LISFLOOD-FP; GSWP2; ATMOSPHERE TRANSFER SCHEME; LAND-SURFA	[Biancamaria, S.; Mognard, N. I
C. Bosc, T. Delcroix and C. Mae	2009	Barrier Layer				Journal of Geophysical Research-Ocean	3.174	Oceanography	SEA-SURFACE TEMPERATURE; 1986-1989 EL-NINO; EQUATORIAL PACIFIC; MIXE	[Bosc, C.; Delcroix, T.] IRD, CN
J. Boucharef, B. Dewitte, B. Gar	2009	Enso's Non-S				Nonlinear Processes in Geophysics	1.409	Geochemistry & Geophysics; Meteorology &	PACIFIC DECADEAL VARIABILITY; BACKGROUND MEAN STATE; EL-NINO; INTERD	[Boucharef, J.; Dewitte, B.; du F
M. N. Bouin, V. Ballu, S. Calmar	2009	A Kinematic I				Journal of Geodesy	2.808		TIDE	[Bouin, M.-N.] CNRM CMM, F-2
M. N. Bouin, V. Ballu, S. Calmar	2009	Improving res				Journal of Geodesy	2.808		GLOBAL OCEAN	[Bouin, M.-N.] Meteo France, C
J. P. Boy, L. Longuevergne, F. B	2009	Modelling Atr				Journal of Geodynamics	2.967	Geochemistry & Geophysics	BAROTROPIC RESPONSE; PRESSURE; EARTH; DEFORMATION; TIDES; REDUCT	[Boy, J.-P.] NASA, Goddard Spa
A. Cazenave, K. Dominh, S. Guie	2009	Sea Level Bu				Global and Planetary Change	3.155		ICE MASS-LOSS; ANTARCTICA; GREENLAND; BALANCE; TEMPERATURE; SHEE	[Cazenave, A.; Dominh, K.; Ber
A. Chaigneau, G. Eldin and B. D	2009	Eddy Activity				Progress in Oceanography	3.708	Oceanography	SEA-SURFACE HEIGHT; CALIFORNIA CURRENT; MAPPING CAPABILITIES; TROPI	[Chaigneau, A.] UPMC CNRS IF
Y. Chao, Z. J. Li, J. Farrara, J. C	2009	Development				Deep-Sea Research Part II-Topical Stud	2.243	Oceanography	MONTEREY BAY; MODELING SYSTEM; SURFACE; FLOW; TOPOGRAPHY; DYNA	[Chao, Y.; Li, Z.; Li, P.] CALTE
K. C. Cheng, S. Calmant, C. Y. C	2009	Branco River				Marine Geodesy	1.407	Geochemistry & Geophysics; Oceanography	ALTIMETRY; BASIN	[Cheng, K.-C.] Natl Chung Cher
J. Choi, S. I. An, B. Dewitte and	2009	Interactive Fe				Journal of Climate	4.362	Oceanography	SEA-SURFACE TEMPERATURE; INTERDECADEAL CLIMATE FLUCTUATIONS; PRIN	[Choi, J.; An, S.-I.] Yonsei Univ
G. K. C. Clarke, E. Berthier, C. C	2009	Neural Netwo				Journal of Climate	4.362	Meteorology & Atmospheric Sciences	SELF-ORGANIZING MAPS; TROPICAL PACIFIC; CLIMATE; ICE; PRECIPITATION; FALL	[Clarke, G. K. C.; Schoof, C. G.
S. Cravatte, T. Delcroix, D. X. Zh	2009	Observed Fre				Climate Dynamics	4.231		SEA SURFACE TEMPERATURE; MERIDIONAL OVERTURNING CIRCULATION; ATM	[Cravatte, S.; Delcroix, T.] IRD I
S. Cravatte and C. Menkes	2009	Sensitivity Of				Ocean Modelling	2.628		TROPICAL INSTABILITY WAVES; GENERAL-CIRCULATION; MODEL; SEA-SURFAC	[Cravatte, S.] Univ Toulouse, UF
J. F. Cretaux, S. Calmant, V. Ro	2009	An Absolute I				Journal of Geodesy	2.808	Geochemistry & Geophysics; Remote Sensin	OCEAN	[Cretaux, J.-F.; Berge-Nguyen, I
J. F. Cretaux, R. Letolle and S. C	2009	Investigations				Aquatic Geochemistry	1.527		MIRABILITE; ARAL SEA; ALTIMETRY; REGRESSIONS	[Cretaux, J.-F.] CNES Legos, Tr
P. De Mey, P. Craig, F. Davidso	2009	Applications I				Oceanography	2.701	Oceanography	CIRCULATION MODEL; GODAE PRODUCTS; SYSTEM; SHELF; SEA; ASSIMILATIO	[De Mey, P.] Observ Midi Pyren
P. De Mey and R. Proctor	2009	Assessing Th				Ocean Dynamics	1.761	Oceanography	ECOSYSTEMS; GODAE; SHELF SEAS; MODELLING; OPM2009 REF JAJWMAY09	[De Mey, P.] LEGOS, Toulouse
T. Delcroix and S. Cravatte	2009	Le changement				La Météorologie			CLIMATOLOGIE; SURFACE MARINE; TEMPERATURE DE SURFACE; SALINITE; VARIATION TEMPORELLE; CHAN	[De Mey, P.] Observ Midi Pyren
B. Dewitte, S. Thual, S. W. Yeh,	2009	Low-Frequen				Journal of Climate	4.362	Meteorology & Atmospheric Sciences	TROPICAL PACIFIC; EL-NINO; COUPLED MODEL; DECADEAL VARIABILITY; INTERA	[Dewitte, B.] Lab Etud Geophys
F. Durand, D. Shankar, F. Biral	2009	Spatiotempor				Journal of Geophysical Research-Ocean	3.174	Oceanography	WESTERN BOUNDARY CURRENT; BAY-OF-BENGAL; SEA-LEVEL; ARABIAN-SEA	[Durand, F.] IRD, CNRS, CNES
J. C. Dutay, F. Lacan, M. Roy-Bi	2009	Influence of p				Geochemistry Geophysics Geosystems	2.939	Geochemistry & Geophysics	PARTICULATE ORGANIC-MATTER; SOUTHERN-OCEAN; THORIUM ISOTOPES; ATI	[Dutay, J.-C.; Lacan, F.; Roy-B
K. Fiege, C. A. Miller, L. F. Robi	2009	Strontium Iso				Chemical Geology	3.154	Geochemistry & Geophysics	WATER, CLIMATE; ANDES; GEOCHEMISTRY; SR-87/SR-86; EROSION; STREAMS	[Fiege, K.; Miller, C. A.; Robins
M. Gerbaux, N. Hall, N. Dessay	2009	The sensitivi				Hydrological Sciences Journal-Journal	1.114	Water Resources	WEST NIGER; DISAGGREGATION; VARIABILITY; CATCHMENT; IMPACT; SCALE	[Gerbaux, M.; Hall, N.; Dessay,
A. C. V. Getirana, M. P. Bonnet,	2009	Hydrological I				Journal of Hydrology	2.964	Engineering, Civil; Geosciences, Multidisciplin	TOPEX/POSEIDON SATELLITE ALTIMETRY; AMAZON BASIN; RIVER DISCHARGE;	[Getirana, A. C. V.] Univ Fed Ri
M. Herrmann, J. Bouffard and K.	2009	Monitoring Oj				Geophysical Research Letters	3.982	Geosciences, Multidisciplinary	MEDITERRANEAN-SEA; CIRCULATION MODEL; WATER FORMATION; VARIABILIT	[Herrmann, M. C.] CNRS, Ctr Natl
L. M. Ivanov, C. A. Collins, P. Mc	2009	On model vali				Ocean Modelling	2.628	Meteorology & Atmospheric Sciences; Ocean	REGIONAL OCEAN MODELS; CURRENT SYSTEM; STOCHASTIC STABILITY; GENE	[Ivanov, L. M.] Moss Landing Mi
S. Janicot, F. Mounier, N. M. J. J	2009	Dynamics Of				Journal of Climate	4.362		OUTGOING LONGWAVE RADIATION; SURFACE CIRCULATION PATTERNS; NORTH	[Janicot, S.; Sultan, B.] Univ Pa
C. Jeandel, Y. Godderis, B. Peuc	2009	Impact Of Thr				Geochimica Et Cosmochimica Acta	3.884	Geochemistry & Geophysics	SUSPENDED-SEDIMENT TRANSPORT; 3D HYDRODYNAMIC MODEL; SOUTH-WES	[Jeandel, C.; Lacan, F.; Arsouz
A. Jouan, J. P. Lefebvre, P. Doui	2009	Wind Wave Iv				Coastal Engineering	2.239	Engineering, Civil; Engineering, Ocean	ICE-SHEET; TEMPORAL VARIABILITY; ISOTOPE COMPOSITION; GREENLAND; EN	[Jouan, A.; Lefebvre, J.-P.; Dou
G. Karakas, N. Nowald, C. Scha	2009	Impact of part				Progress in Oceanography	3.708	Oceanography	SHEET MASS-BALANCE; FIRN DENSIFICATION; GREENLAND; GRAVITY; CLIMATE	[Karakas, G.; Schaefer-Neth, C.
M. A. King, R. Coleman, A. J. Fr	2009	A 4-Decade F				Journal of Geophysical Research-Earth	3.174	Geosciences, Multidisciplinary	TROPICAL ATLANTIC-OCEAN; UPPER-LAYER CIRCULATION; ANNUAL CYCLE; THI	[King, M. A.; Hamran, S.-E.] Ur
N. Kolodziejczyk, B. Bourlé, F.	2009	Seasonal Var				Journal of Geophysical Research-Ocean	3.174	Oceanography	TROPICAL ATLANTIC-OCEAN; UPPER-LAYER CIRCULATION; ANNUAL CYCLE; THI	[Kolodziejczyk, N.] IRD, LEGOS
J. Korona, E. Berthier, M. Bernar	2009	Spirit. Spot 5				Isprs Journal of Photogrammetry and Re	3.313	Geography, Physical; Geosciences, Multidisc	SPOT 5 HRS; DIGITAL ELEVATION MODELS; JAKOBSHAVN ISBRAE; GREENLAND	[Berthier, E.; Remy, F.] Univ To
A. V. Kouraev, A. G. Kostianoy &	2009	Ice Cover Anc				Journal of Marine Systems	2.655	Geosciences, Multidisciplinary; Marine & Fret	PROCESSING SCHEME; GREAT-LAKES; TOPEX/POSEIDON; VARIABILITY; EVOLI	[Kouraev, A.V.] Univ Toulouse, I
P. Lacroix, B. Legresy, F. Remy	2009	Rapid Chang				Remote Sensing of Environment	5.103	Environmental Sciences; Remote Sensing; Im	ICE-SHEET; TEMPORAL VARIABILITY; ISOTOPE COMPOSITION; GREENLAND; EN	[Lacroix, P.; Legresy, B.; Remy
K. Langley, P. Lacroix, S. E. Hai	2009	Sources Of B				Journal of Glaciology	2.882		GROUND-PENETRATING RADAR; POLAR ICE; GLACIER; KONGSVEGEN; SHEET	[Langley, K.; Hamran, S.-E.] Ur
M. Le Henaff, P. De Mey and P.	2009	Assessment			LA	Ocean Dynamics	1.761	Oceanography	NORTHEAST ATLANTIC-OCEAN; SOUTHERN BAY; INVERSE METHODS; FORECA	[Le Henaff, M.; De Mey, P.] Uni
S. H. Lee, P. Povinec, J. Gastau	2009	Radionuclides				Journal of Oceanography	1.051		ANTARCTIC CIRCUMPOLAR CURRENT; CERTIFIED REFERENCE MATERIAL; FALL	[Lee, S.-H.] Korea Res Inst Sta

530 références

# Les cartographies produites

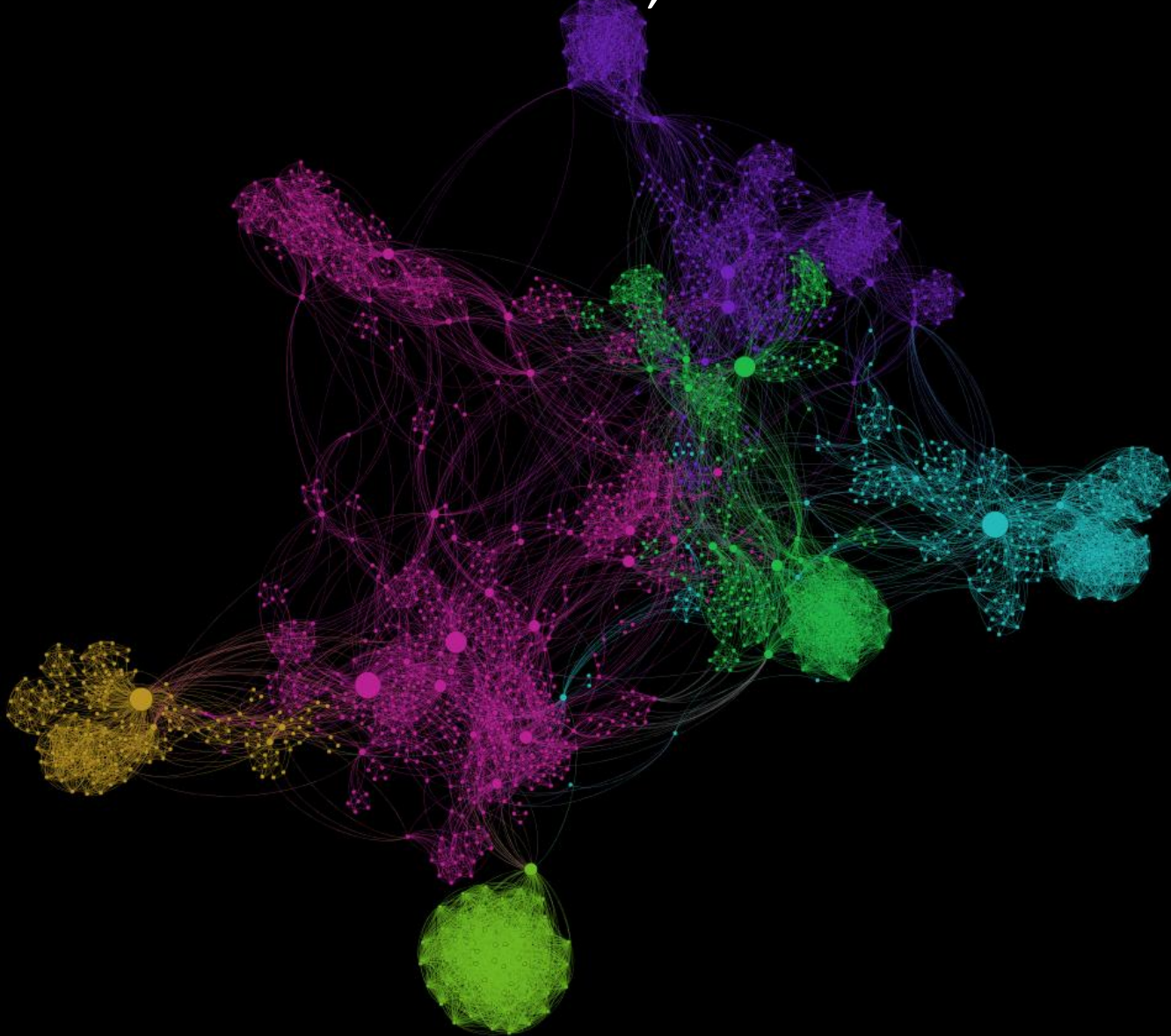


# Volumétrie des équipes ; Chercheurs en lien avec plusieurs équipes

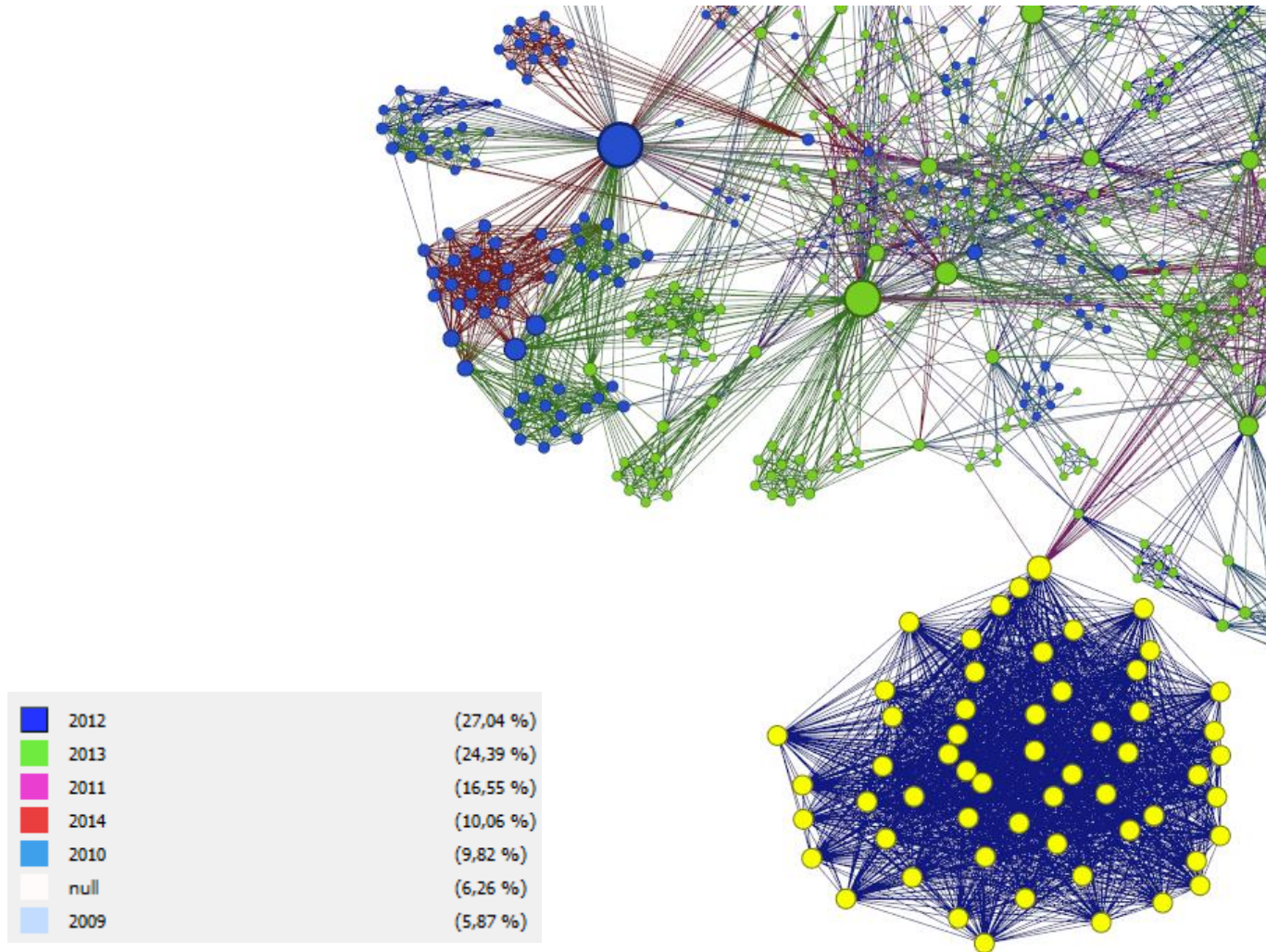




# Relation entre les chercheurs ; détection de « clusters »



# Mise en exergue des années



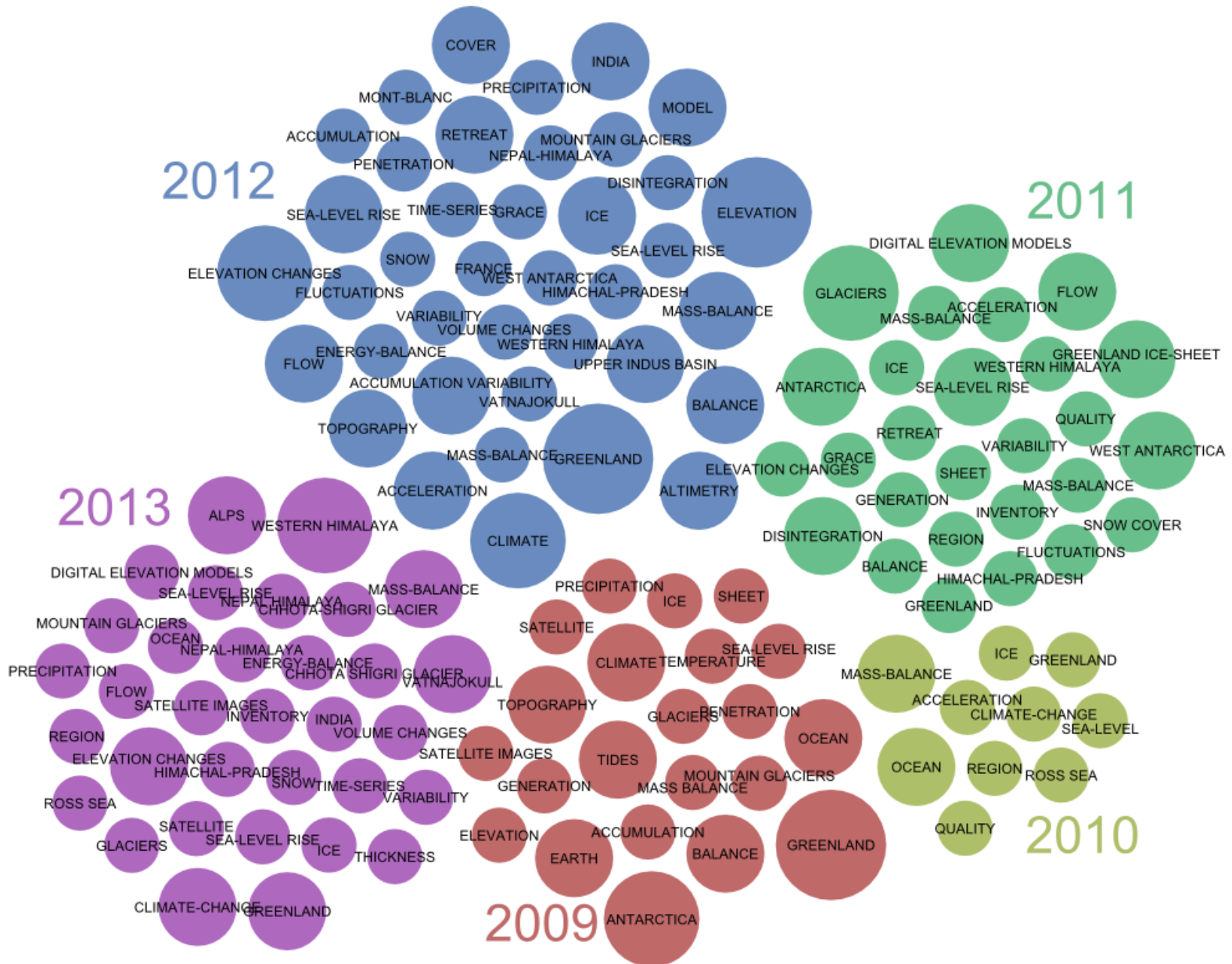
# Collaboration par pays ; carte interactive (Web)



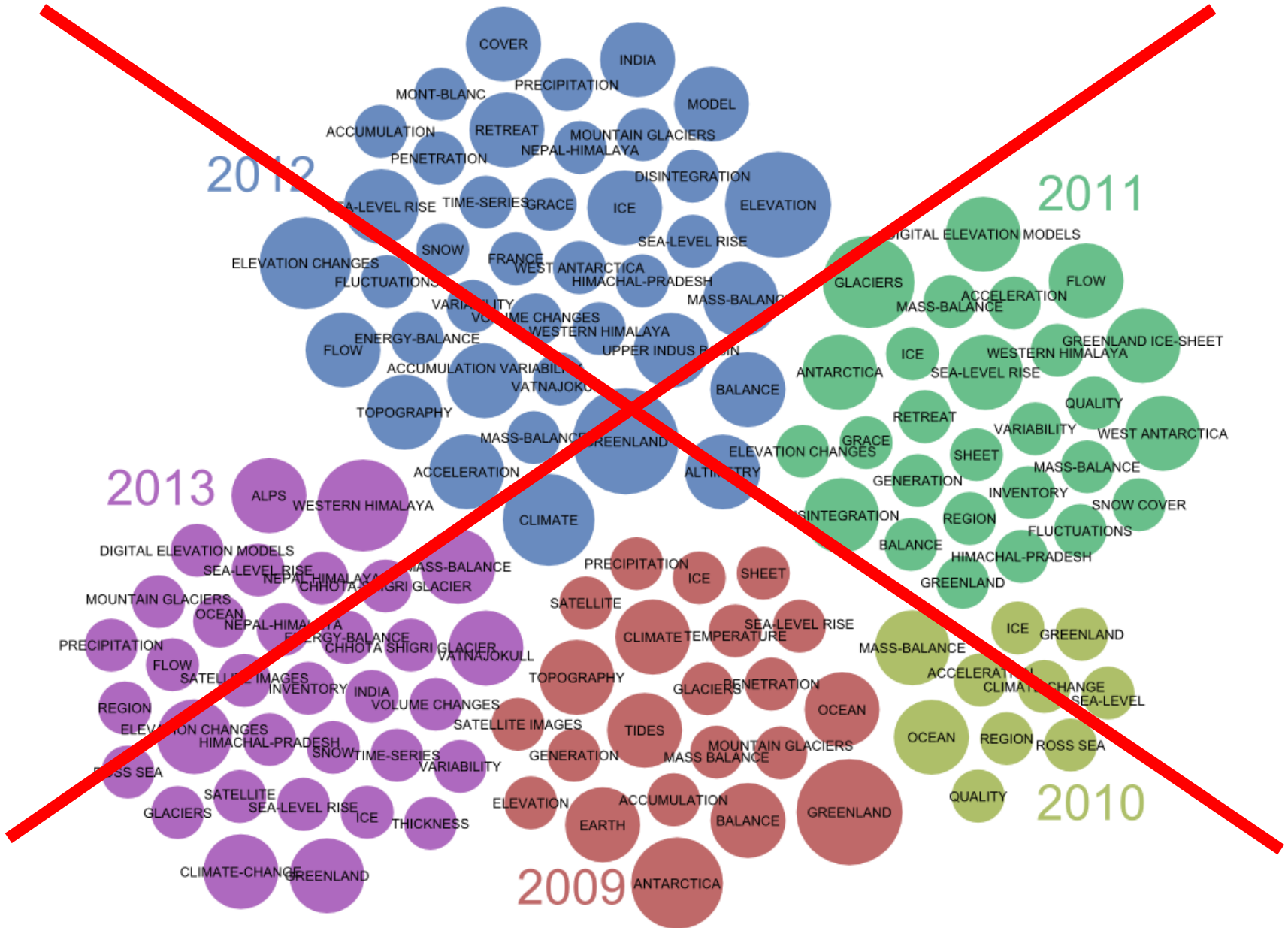
# Collaboration d'un laboratoire ; graphique en barre



# Mots clés des références



# Mots clés des références



# Géolocalisation des Universités et collaborations





Conclusion