Curriculum Vitae

Etat Civil

GARNIER, Josette

Née en 1955

Situation à l'Académie

Membre correspondant dans la section Interactions milieux-être vivants

Rubriques à renseigner

Titre : Docteur ès Sciences Naturelles

Situation actuelle : Directrice de Recherche au CNRS

Coordonnées

Professionnelles :

SU CNRS EPHE, Boite 105, UMR Metis 7619,Tour 56, 4ème étage,4 place Jussieu, 75005 Paris
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Personnelles :

14 rue du Cardinal Lemoine, 75005, Paris
tél (Fixe) : 01 43 54 79 82 ; tél (portable) : 06 08 03 84 23, E-mail:josette.garnier@upmc.fr

Formations et diplômes Universitaires

1974-1977, Maîtrise de biologie, Univ. Bordeaux
1977-1978, Certificat d'Hydrogéologie, Paris 6.
1978-1979, DEA d'Ecologie, URA 258, ENS, Paris 6
1981-1982, Certificat d'Informatique et de Statistique Appliquée, Université Pierre et Marie Curie
1982, Doctorat de 3ème cycle, Ecologie, Hydrobiologie, Université Pierre et Marie Curie
1989, Doctorat ès Sciences Naturelles, Université Pierre et Marie Curie

Carrière

1982-1984, Chercheur sous contrat, URA 258, ENS, Paris.
1984, Juillet-octobre, séjour post-doctoral, FBA, Windermere, UK
1984-1990, Affectation CNRS, Chargée de Recherche, URA 258 CNRS, ENS, Paris 6.
1990-1992, Novembre 90-novembre 92, Mise à disposition par le CNRS au laboratoire *« modélisation des écosystèmes aquatiques* », GMMA, Bruxelles
Depuis 1992, Affectation à l'UMR Metis 7619, SU, CNRS, EPHE (ex URA 1367, ex Sisyphe), responsable d'équipe depuis 1997
2007-2018, Directrice de la Fédération FR-3020 (**F**édération **I**le-de-France de **R**echerche en **E**nvironnement)
Depuis 2000, Directrice de Recherche CNRS, UMR Metis 7619, SU, CNRS, EPHE

Domaines d'expertise

Cycles biogéochimiques carbone, azote, phosphore, silice
Fonctionnement biogéochimique des hydro-agrosystèmes
Emissions de contaminants des sols vers les hydrosystèmes et l'atmosphère
Eutrophisation des eaux de surfaces
Modélisation biogéochimique et construction de scénarios

Mots Clés

Hydro-agrosystèmes ; Cycles biogéochimiques ; Continuum Homme-Terre-Mer ; Eutrophisation ; Fuites et stockage des éléments nutritifs ; Bilan et modélisation

Distinction: Ruth Patrick Award **(ASLO), 2016 (Santa Fe)**

Fonctions récentes et actuelles

2007-2018, Directrice de la Fédération FR-3020 (Fédération Ile-de-France de Recherche en Environnement)
Depuis 1997, responsable d'équipe au laboratoire Metis
Depuis 2000, Directrice de Recherche CNRS, UMR Metis 7619, SU, CNRS, EPHE

Publications (*doctorants ou post-doctorants encadrés)

1. *Anglade J., Billen G. **Garnier J.**, Makridis, T., Puech, T., Tittel, C. (2015). Agro-environmental performance of organic compared to conventional cash crop farming in the Seine watershed. Agricultural Systems. 139: 82–92.
2. Billen G., Le Noë J., Garnier J. (2018). Two contrasted future scenarios for the French agro-food system. Science of the Total Environment 637–638: 695–705. doi.org/10.1016/j.scitotenv.2018.05.043.
3. *Benoit, M., **Garnier, J.**, Beaudoin, N., Billen, G. (2016) A network of organic and conventional crop farms in the Seine Basin (France) for evaluating environmental performance: yield and nitrate leaching. Agricultural Systems, 148: 105–113. http://dx.doi.org/10.1016/j.agsy.2016.07.005
4. **Garnier J**., Anglade J., Benoit M., Billen G., Puech T., Ramarson A., Passy P., Silvestre M., Lassaletta L., Trommenschlager J.-M, Schott C., Tallec G. (2016). Reconnecting crop and cattle farming to reduce nitrogen losses in river water of an intensive agricultural catchment (Seine basin, France). Environmental Science and Policy. 63: 76–90. doi.org/10.1016/j.envsci.2016.04.019
5. **Garnier J.**, Lassaletta L., Billen G., Romero E., Grizzetti B., Némery J., Le Q.L.P., Pistocchi C., Aissa-Grouz N., Luu M.T.N., Vilmin L. Dorioz J.-M. (2015). Phosphorus budget in the water-agro-food system at nested scales in two contrasted regions of the world (ASEAN-8 and EU-27). Global Biog. Cycle. 10.1002/2015GB005147.
6. **Garnier J.,** Billen G., Vilain G., Benoit M., Passy P., Tallec G., Tournebize J., Anglade J., Billy C, Mercier B., Ansart P., Sebilo M., Kao C. (2014). Curative vs. preventive management of nitrogen transfers in rural areas: lessons from the case of the Orgeval watershed (Seine River basin, France). J. Environmental Management. 144 : 125-134. DOI 10.1016/j.jenvman.2014.04.030
7. **Garnier J**., Ramarson A., Billen G., Théry S., Thiéry D., Thieu V., Minaudo C., Moatar F. (2018). Nutrient inputs and hydrology together determine biogeochemical status of the Loire River (France): current situation and possible future scenarios. Science of the Total Environment, 637–638 : 609–624. doi.org/10.1016/j.scitotenv.2018.05.045
8. **Garnier J,** Billen G., Legendre R., Riou Ph., Cugier Ph., Schapira M., Théry S., Thieu V., Menesguen A. (2019). Managing the Agri-Food System of Watersheds to Combat Coastal

Eutrophication: A Land-to-Sea Modelling Approach to the French Coastal English Channel. Geosciences 2019, 9, 441; doi:10.3390/geosciences9100441

9. *Le Noë, Billen G., Mary B., Garnier J. (2019). Assessing long-term soil organic carbon dynamics in cropland and identification of the main drivers of C sequestration: the case of French regions from 1852 to 2014. Journal of Environmental Policy. 93 : 53–65. https://doi.org/10.1016/j.envsci.2018.12.027.

10. *Le Noë J., **Garnier J**., Billen G. (2018). Phosphorus management in cropping systems of the Paris Basin: From farm to regional scale.of Environmental Management, 205: 18-28. doi.org/10.1016/j.jenvman.2017.09.039

Short Bio

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Josette Garnier defended her Ph-D in Aquatic Ecology and Environment from the University Pierre and Marie Curie (UPMC), together with a certificate in Computing and Applied Statistics in 1982. After a post-doc in UK and France, she was appointed by the National Center of Scientific Research (CNRS) in 1984, got an accreditation to supervise research (Doctorat d'Etat *ès* Sciences) in 1989. She is presently Research Director at the CNRS with tenure in the field of Biogeochemistry at the Parisian Sorbonne University in France. Since 1997, she leads a research team of Metis Lab and from 2007-2018 she was the head of an interdisciplinary research federation for the environment, gathering 18 laboratories. Since 1989, she has been taken part in an interdisciplinary long term research programme on the Seine River Basin (North of France), strongly impacted by human activity. Anthropogenic modifications of biogeochemical cycles have become a major driver of her research, leading to interdisciplinary collaboration with historians and social geographs as early as 1991. An objective of her projects, besides basic research towards new frontiers of knowledge, is to respond to societal demands such as the reduction of eutrophication, hypoxia, organic and nitric pollutions, and greenhouse gas emissions. She actively participated to the development of a biogeochemical modelling approach of land-to-sea aquatic continua (GRAFS-RIVERSTRAHLER Model) allowing to understand the cause of river and coastal zone eutrophication related to human activities in watersheds, and to co-construct scenarios with policy makers and stakeholders for alternative management options of the water-agro-food systems at the scale of watersheds. She has been PI of 23 National and European projects and supervised 25 Ph-D students. She published about 190 articles in journals indexed in the ISI Science Citation index and 48 book chapters. She co-edited five special issues. She shared the Ruth Patrick award in 2016, with Gilles Billen.