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born on September 16<sup>th</sup>, 1981  
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## Data Scientist

### Work experience and internships

<p><b>Since Feb. 2013</b>  <small>IRSTEA &amp; INRA became INRAE in 2020</small></p>	<p><b>Permanent position at INRAE – HYCAR Research Unit (Antony)</b></p> <ul style="list-style-type: none"> <li>○ Hydrological modelling</li> <li>○ Software development</li> <li>○ Database management for the ORACLE hydrological and biogeochemical observatory</li> <li>○ Cartography and spatial analysis</li> <li>○ Statistics and data analysis</li> </ul>
<p><b>Sep. 2012 to Jan. 2013</b>  <small>ONEMA &amp; ONCFS became OFB in 2020</small></p>	<p><b>Fixed term contract at ONEMA – Research &amp; Development Department (Vincennes)</b>  <b>Assessing the impact of new bioindicators (study for French Ministry of Environment)</b></p> <ul style="list-style-type: none"> <li>○ Relationship with scientists to identify possibilities for adjusting the quality class limits of indicators in relation with the results of the European WFD intercalibration exercise</li> <li>○ Aggregation of the different bioindicators and development of the national summary of results</li> </ul> <p><i>Supervision: Yorick Reyjol</i></p>
<p><b>Oct. 2008 to Aug. 2012</b>  <small>CEMAGREF became IRSTEA in 2012</small></p>	<p><b>Fixed term contract at CEMAGREF – Hydrosystems and Bioprocesses Research Unit (Antony)</b>  <b>IPR+ programme (study for ONEMA)</b></p> <ul style="list-style-type: none"> <li>○ Developing the new French fish-based index to assess river ecological quality: modelling metric responses to the environment, analysing the sensitivity of metrics and index responses to human pressures, ratification of results in interaction with users</li> </ul> <p><i>Supervision: Didier Pont &amp; Jérôme Belliard</i></p> <p><b>European WFD intercalibration exercise (study for the JRC of the European Commission)</b></p> <ul style="list-style-type: none"> <li>○ Co-leader of the ECOSTAT group in charge of European fish-based methods to assess river ecological quality</li> <li>○ Establishing the official European database of the group</li> <li>○ Developing methods and computing programs in order to harmonize the European indices</li> </ul> <p><i>Supervision: Didier Pont</i></p>
<p><b>May 2008 to Sep. 2008</b></p>	<p><b>Fixed term contract at CEMAGREF – Hydrobiology Research Unit (Aix-en-Provence)</b>  <b>IPR+ programme (study for ONEMA)</b></p> <ul style="list-style-type: none"> <li>○ Establishment of the national database for the development of the new French fish-based index to assess river ecological quality</li> </ul> <p><i>Supervision: Didier Pont</i></p>
<p><b>Apr. 2007 to Apr. 2008</b></p>	<p><b>Fixed term contract at CEMAGREF – Hydrobiology Research Unit (Aix-en-Provence)</b>  <b>CYPREF project</b></p> <ul style="list-style-type: none"> <li>○ Computing cyprinids habitat preferences and developing fish-habitat models on the 5M7 software</li> </ul> <p><i>Supervision: Yann Le Coarer</i></p>
<p><b>Oct. 2006 to Mar. 2007</b></p>	<p><b>Fixed term contract at CEMAGREF – Hydrobiology Research Unit (Aix-en-Provence)</b>  <b>Therm and Hydrobiology programme (study for Electricity of France [EDF])</b></p> <ul style="list-style-type: none"> <li>○ Analysis of the influence of temperature on growth of juvenile cyprinid fish on the Lower Rhône river</li> </ul> <p><i>Supervision: Georges Carrel</i></p>
<p><b>Feb. 2006 to Aug. 2006</b>  <small>ONEMA &amp; ONCFS became OFB in 2020</small></p>	<p><b>Internship at ONCFS – Predatory Animals Research Unit (Gières)</b>  <b>Master's 2<sup>nd</sup> year in Biomathematics and Biocomputing</b></p> <ul style="list-style-type: none"> <li>○ Analysis of grey wolf (<i>Canis lupus</i>) diet and analysis of results sensitivity to determination bias</li> </ul> <p><i>Supervision: Christophe Duchamp</i></p>
<p><b>Nov. 2004 to May 2005</b></p>	<p><b>Internship at Claude Bernard University, Lyon 1 – Biometry and Evolutionary Biology Laboratory (Villeurbanne)</b>  <b>Master's 1<sup>st</sup> year in Biomathematics and Biocomputing</b></p> <ul style="list-style-type: none"> <li>○ Analysis of the effects of heavy metals on life history traits of chironomids (<i>Chironomus riparius</i>)</li> </ul> <p><i>Supervision: Sandrine Charles</i></p>

### Academic education

<p><b>Sep. 2006</b></p>	<p><b>Master's 2<sup>nd</sup> year in Biomathematics &amp; Biocomputing</b>          Claude Bernard University, Lyon 1 [UCBL] (Villeurbanne)</p>
<p><b>Jun. 2005</b></p>	<p><b>Master's 1<sup>st</sup> year in Biomathematics &amp; Biocomputing</b> - UCBL (Villeurbanne)</p>
<p><b>Jun. 2004</b></p>	<p><b>Maîtrise [4<sup>th</sup> year post-graduate degree] in Population &amp; Ecosystem Biology</b> - UCBL (Villeurbanne)</p>
<p><b>Jun. 2003</b></p>	<p><b>Bachelor's in Biology of Organisms</b> - UCBL (Villeurbanne)</p>
<p><b>Jun. 2002</b></p>	<p><b>DEUG [General University Studies Diploma] in Life Sciences</b> - UCBL (Villeurbanne)</p>
<p><b>Jun. 2000</b></p>	<p><b>High school diploma in Sciences</b> - Institution Robin (Vienne)</p>

## Computing skills

<b>OS</b>	UNIX (Linux, Solaris), Windows
<b>Programming</b>	R, S, Java, Python, HTML (+CSS)
<b>Mathematics</b>	R, S-Plus, MATLAB, Maple
<b>Modelling</b>	GR suite (hydrology), M-Surge (ecology), DEBtox (ecotoxicology)
<b>Geomatics</b>	ArcGIS, GDAL, GRASS GIS, QGIS, SAGA GIS, TauDEM
<b>Word processor</b>	LaTeX, LibreOffice, Markdown, Microsoft Office, EndNote, JabRef, Zotero
<b>Versioning</b>	Git, Subversion, CI/CD

## Teachings and Training courses offered

<b>2020</b>	<b>GIS/Remote Sensing Seminar (Paris) – Master 2 <i>Fundamentals of Remote Sensing</i> (IPGP), Master 2 TGAE (univ. de Paris) &amp; Master 2 IGAST (univ. Gustave Eiffel)</b> <ul style="list-style-type: none"><li>◦ Use of DTMs and GIS for hydrological modelling [1 × 2 hours]</li></ul>
<b>Since 2018</b>	<b>Training in hydrological modelling using airGR &amp; airGRteaching softwares</b> <ul style="list-style-type: none"><li>◦ Flood forecasting workshops: familiarisation with tools and methods (Rabat, Morocco) Presentation and familiarization [1 × 12 hours]</li><li>◦ HydroGR days 2019 meetings for academic researchers (Antony) Presentation and familiarization [1 × 18 hours]</li><li>◦ HydroGR days 2018 meetings for operational departments and design offices (Antony) Presentation and familiarization [1 × 13 hours]</li></ul>
<b>Since 2017</b>	<b>Hydrological modelling course – VET engineers &amp; Master 2 SAGE – École des Ponts ParisTech (Marne-la-Vallée)</b> <ul style="list-style-type: none"><li>◦ Tutorial works [1 × 2.5 hours &amp; 3 × 5 hours]</li></ul>
<b>Since 2016</b>	<b>Hydrological modelling course – Master 2 SDUEE-HHGE - Sorbonne University (Paris)</b> <ul style="list-style-type: none"><li>◦ Lecture course [1 × 9 hours, 3 × 6 hours &amp; 1 × 3 hours]</li><li>◦ Tutorial works [1 × 6 hours &amp; 4 × 3 hours]</li></ul>
<b>2016</b>	<b>Statistical hydrology course – 1<sup>st</sup> year engineers in Water engineering - Polytech Nice-Sophia (Antibes)</b> <ul style="list-style-type: none"><li>◦ Lecture course [1 × 2 hours]</li><li>◦ Tutorial works [2 × 2 hours]</li></ul>
<b>Since 2014</b> in French or in English	<b>R training (Antony) for researchers and students from INRAE, Sorbonne University, CNRS and the GRNE Doctoral School (ED 398)</b> <ul style="list-style-type: none"><li>◦ Beginners' course (programming and statistics) [1 × 14 hours &amp; 2 × 21 hours]</li><li>◦ Language basics (programming) [4 × 14 hours &amp; 12 × 21 hours]</li><li>◦ Geomatics basics (programming and geomatics) [6 × 14 hours]</li></ul>
<b>2014</b>	<b>IPR+ training for the engineers from ONEMA and the French water agencies (Vincennes)</b> <ul style="list-style-type: none"><li>◦ Presentation and familiarization [1 × 28 hours]</li></ul>

## Supervision

<b>Since 2019</b> 15 months	<b>V. Mansanarez – Postdoc - University of Pau and Pays de l'Adour (Anglet)</b> Statistical hydrological modelling of the Adour basin (BIGCEES project) <i>Co-supervision: Guillaume Thirel</i> <i>Cooperation: Benoît Liqueur (University of Pau and Pays de l'Adour)</i>
<b>2019-2020</b> 20 days	<b>R. Bertrand &amp; L. Coquemont – Master 2 of engineering in Geoscience - Polytech Sorbonne (Paris)</b> Establishment of a reference sample of watersheds in France <i>Co-supervision: Benoît Génot</i>
<b>2019</b> 6 months	<b>P. Astagneau – Master 2 of engineering in Geoscience - Polytech Sorbonne (Paris)</b> Comparison of hydrological modelling R packages <i>Co-supervision: Guillaume Thirel</i> <i>Cooperation: Juraj Parajka (Technische Universität Wien) &amp; Alberto Viglione (Politecnico di Torino)</i>
<b>2017</b> 6 months	<b>S. V. Mata Espinoza – Master 2 SDUEE-HHGE - Pierre and Marie Curie University (Paris)</b> airGR, a hydrological modelling package to improve? Assessment on a large sample of watersheds <i>Co-supervision: Guillaume Thirel</i>
<b>2016</b> 3 months	<b>I. Haddadi – Master 1 <i>Applied mathematics, statistics</i> - Blaise Pascal University (Clermont-Ferrand)</b> Statistical tests of significance applied to hydrology <i>Co-supervision: Guillaume Thirel</i>

## Social and cultural life

<b>Music</b>	Graduate of the conservatory (trumpet, musical theory, musical analysis, chamber music) Member of the <i>Brassage Brass Band</i> (1 <sup>st</sup> prizes in the Excellence division at the French national contests in 2009, 2011 to 2017, 2019 and 2020) and the <i>Brassage Wind Ensemble</i> . Member of the <i>Ut cinquième</i> and <i>Note &amp; Bien</i> symphony orchestras. Additional musician in various symphony orchestras ( <i>Hélios</i> , etc.)
<b>Entertainment</b>	Instructor and trumpet teacher at the musical summer camp of the Dauphiné Musical Federation (FSMD) at Estrablin during the months of July from 2000 to 2003
<b>Reading</b>	Essays on the theory of evolution, ethology, history of science or epistemology
<b>Sport</b>	Hiking, ultimate, badminton, cross-country skiing
<b>Misc</b>	Driving license, first aid rescuer at work (since 2015)

## Publications

### Scientific papers

- A11. Astagneau, P.C., Thirel, G., **Delaigue, O.**, Guillaume, J.H.A., Parajka, J., Brauer, C.C., Viglione, A., Buytaert, W. & Beven, K.J. ((under review). Hydrology modelling R packages: a unified analysis of models and practicalities from a user perspective. *Hydrology and Earth System Sciences Discussions*, 1–48, DOI: 10.5194/hess-2020-498.
- A10. Piazza, G., Thirel, G., Perrin, C. & **Delaigue, O.** (under review). Sequential data assimilation for streamflow forecasting: assessing the sensitivity to uncertainties and to updated variables of a conceptual hydrological model. *Water Resources Research*.
- A9. Pont, D., Valentini, A., Rocle, M., Maire, A., **Delaigue, O.**, Jean, P. & Dejean, T. (in press). The future of fish-based ecological assessment of European rivers: from WFD-compliant methods to eDNA metabarcoding-based indices. *Journal of Fish Biology*. DOI: 10.1111/jfb.14176.
- A8. Tilmant, F., Nicolle, P., Besson, F., Bourgin, F., **Delaigue, O.**, Etchevers, P., Francois, D., Le Lay, M., Perrin, C., Rousset, F., Thiéry, D., Magand, C., Leurent, T. & Jacob, E. (accepted). PREMHYCE: An operational tool for low-flow forecasting. *La Houille Blanche* 5, 37–44, DOI: 10.1051/lhb/2020043.
- A7. Slater, L., Thirel, G., Harrigan, S., **Delaigue, O.**, Hurley, A., Khouakhi, A., Prodosimi, I., Vitolo, C. & Smith, K. (2019). Using R in hydrology: a review of recent developments and future directions. *Hydrology and Earth System Sciences* 23, 2939–2963. DOI: 10.5194/hess-23-2939-2019.
- A6. Belliard, J., Beslagic, S., **Delaigue, O.** & Tales, E. (2018). Reconstructing long-term trajectories of fish assemblages using historical data: the Seine River basin (France) during the last two centuries. *Environmental Science and Pollution Research* 25, 23430–23450. DOI: 10.1007/s11356-016-7095-1.
- A5. Uher, E., Besse, J., **Delaigue, O.**, Husson, F. & Lebrun, J. (2018). Comparison of the metal contamination in water measured by diffusive gradient in thin film (DGT), biomonitoring and total metal dissolved concentration at a national scale. *Applied Geochemistry* 88, 247–257. DOI: 10.1016/j.apgeochem.2017.05.003.
- A4. Beslagic, S. & **Delaigue, O.** (2017). The otter in Belgium: an unpopular and maltreated species (19th-early 20th centuries). *Anthropozoologica* 52, 155–170. DOI: 10.5252/az2017n2a2.
- A3. Coron, L., Thirel, G., **Delaigue, O.**, Perrin, C. & Andréassian, V. (2017). The suite of lumped GR hydrological models in an R package. *Environmental Modelling & Software* 94, 166–171. DOI: 10.1016/j.envsoft.2017.05.002.
- A2. Marzin, A., **Delaigue, O.**, Logez, M., Belliard, J. & Pont, D. (2014). Uncertainty associated with river health assessment in a varying environment: the case of a predictive fish-based index in France. *Ecological Indicators* 43, 195–204. DOI: 10.1016/j.ecolind.2014.02.011.
- A1. Segurado, P., Caiola, N., Pont, D., Oliveira, J., **Delaigue, O.** & Ferreira, T. (2014). Comparability of fish-based ecological quality assessment for geographically distinct Iberian regions. *Science of the Total Environment* 476–477, 785–794. DOI: 10.1016/j.scitotenv.2013.09.004.

### Inproceedings

- IN3. Riffard-Chenet, M., Lebecherel, L., Andréassian, V. & **Delaigue, O.** (submitted). Using historical ground rainfall data to adjust a global rainfall reanalysis data-base over Africa. Africa 2019 Conference & Exhibition, Windhoek, 2-4 Apr. 2019.
- IN2. Nicolle, P., Besson, F., **Delaigue, O.**, Etchevers, P., François, D., Le Lay, M., Perrin, C., Rousset, F., Thiéry, D., Tilmant, F., Magand, C., Leurent, T. & Jacob, E. (2020). PREMHYCE: An operational tool for low-flow forecasting. *Proceedings of the International Association of Hydrological Sciences* 383, 381–389, DOI: 10.5194/pihs-383-381-2020.
- IN1. **Delaigue, O.**, Thirel, G., Coron, L. & Brigode, P. (2018). airGR and airGRteaching: Two open-source tools for rainfall-runoff modeling and teaching hydrology. *HIC 2018. 13th International Conference on Hydroinformatics* (eds. G.L. Loggia, G. Freni, V. Puleo & M.D. Marchis), vol. 3 of *EPiC Series in Engineering*, p. 541–548, EasyChair. DOI: 10.29007/qsqj.

### Scientific popularization

- AP2. **Delaigue, O.**, Eveillé, F., Le Fur, S., Pont, D. & Usseglio-Polatera, P. (2013). Milieux Aquatiques. De nouveaux bioindicateurs, plus sensibles, plus précis. *Techniques sciences méthodes*, 3, p. 14–16, Association scientifique et technique pour l'eau et l'environnement.
- AP1. **Delaigue, O.** (2006). Analyse du régime alimentaire du loup et sensibilité des résultats au biais de détermination. *Quoi de neuf ? Bulletin d'information du réseau loup* (eds. E. Marboutin & C. Duchamp), 16, p. 12–13, ONCFS, Réseau Grands Carnivores Loup-Lynx, Gap.

### Scientific book

- BO1. **Delaigue, O.** (2016). *Géomatique avec R. Manipuler, analyser et représenter des données géographiques*. Self-publishing. 229 p.

### Collective book chapter

- BC1. Tallec, G., Ansart, P., Guérin, A., Derlet, N., Pourette, N., Guenne, A., **Delaigue, O.**, Boudhraa, H. & Loumagne, C. (2013). L'Orgeval, un observatoire long-terme pour l'environnement : caractéristiques du bassin et variables mesurées. *L'Observation long terme en environnement. Exemple du bassin versant de l'Orgeval* (eds. G. Tallec & C. Loumagne), p. 11–33, Quae.

### Scientific and technical reports (selection)

- R19. Tilmant, F., Bourgin, F. & **Delaigue, O.** (2020). Évolution de l'outil de prévision des étiages PREMHYCE. INRAE-OFB. Partenariat 2019-263. Projet PREMHYCE, Antony, 20 p.
- R18. **Delaigue, O.** & Perrin, C. (2019). Expertise sur le calcul du module au droit de la centrale hydroélectrique Cabillon (Pyrénées-Atlantiques). IRSTEA, Antony, 41 p.
- R17. Lebecherel, L., Andréassian, V. & **Delaigue, O.** (2019). Base de données spatiale de pluie en Afrique. IRSTEA, Antony, 37 p.

- R16. Ramos, M.H., Perrin, C., Andréassian, A., **Delaigue, O.** & Viatgé, J. (2017). Assessment report on the 2016 flood event on the Seine and Loire basins (France). European Flood Awareness System (EFAS) dissemination centre, Rijkswaterstaat (NL), SCHAPI (France), IRSTEA (France), Antony, 43 p.
- R15. Nicolle, P., Lebecherel, L., Perrin, C. & **Delaigue, O.** (2016). Détermination de valeurs seuils sécheresse pour les eaux de surface du département de Mayotte. IRSTEA, Antony, 95 p.
- R14. Talès, E., Le Pichon, C., Mathieu, A., Zahm, A., Slawson, D., Albert, M.B., Girondin, M., Roy, M., Chevalier, R., Beslagic, S., **Delaigue, O.** & Belliard, J. (2015). Influence des aménagements sur les peuplements de poissons. *Programme PIREN-Seine. Phase 6, 2011-2015. Axe 4 : Écologie & Écotoxicologie : Les Déterminants de la qualité écologique du milieu aquatique*, p. 9–62, CNRS.
- R13. Vincent, B. & **Delaigue, O.** (2015). État du drainage en France : évolution et impact de réserves de substitution à partir des eaux drainées. IRSTEA-MAAF (DGPAAT/S DIR B&E BSE). Partenariat 2012-2014, Antony, 20 p.
- R12. Lobligeois, F., **Delaigue, O.** & Furusho, C. (2015). Développement de modèles hydrologiques semi-distribués GRP et TGR sur les bassins du Rhin, Sarre, Bruche, Ill et Zorn. SCHAPI-IRSTEA. Partenariat 2014/MRN/SPC, Antony, 86 p.
- R11. Marzin, A., Logez, M., **Delaigue, O.** & Pont, D. (2013). Programme IPR+. Révision de l'indice poisson rivière pour l'application de la DCE. Variabilité temporelle de l'indicateur et incertitudes associées à l'évaluation de la qualité écologique. ONEMA-IRSTEA. Partenariat 2012. Domaine Qualité des eaux. Action 37, Antony, 14 p.
- R10. Pont, D., **Delaigue, O.**, Belliard, J., Marzin, A. & Logez, M. (2013). Programme IPR+. Révision de l'indice poisson rivière pour l'application de la DCE. Version V.2.0 de l'indicateur. ONEMA-IRSTEA. Partenariat 2012. Domaine Qualité des eaux. Action 37, Antony, 208 p.
- R9. **Delaigue, O.** (2012). Étude comparative entre les résultats des anciens et des nouveaux indicateurs biologiques. Réalisation pour l'exercice d'évaluation de l'état écologique des eaux (hors substances) sur les stations RCS 2007-2009. Test de différents scénarios d'agrégation et de jeux de seuils de classes d'état. ONEMA, Vincennes, 43 p.
- R8. Beslagic, S., **Delaigue, O.**, Gorges, G. & Belliard, J. (2012). Répartition historique des espèces piscicoles et astacicoles sur le bassin de la Seine. ONEMA-Cemagref. Partenariat 2011. Domaine Changements globaux et climatiques et hydrosystèmes. Action 11, Antony, 49 p.
- R7. Logez, M., Belliard, J., Melcher, A., Kremser, H., Pletterbauer, F., Schmutz, S., Gorges, G., **Delaigue, O.** & Pont, D. (2012). Water bodies in Europe - Integrative Systems to assess Ecological status and Recovery. Deliverable 5.1-3: BQEs sensitivity to global/climate change in European rivers: implications for reference conditions and pressure-impact-recovery chains. WISER, 183 p.
- R6. Beslagic, S., Tales, E., **Delaigue, O.**, Van Buuren, L. & Belliard, J. (2012). Programme PIREN-Seine. Évolution à long terme de l'état écologique des cours d'eau du bassin de la Seine. Cemagref, Antony, 17 p.
- R5. Belliard, J., Beslagic, S., Demougin, V., **Delaigue, O.** & Pont, D. (2010). Développement d'une métrique basée sur les espèces migratrices. ONEMA-Cemagref. Partenariat 2010. Domaine Espèces aquatiques continentales. Action 5.2, Antony, 19 p.
- R4. Pont, D., **Delaigue, O.**, Beers, M., Breine, J., Buijse, T., Caiola, N., Carrasco, I., Dahlberg, M., Demol, T., Duncan, W., Dussling, U., Ferrera, T., Iliescu, S., Horky, P., Kelly, F., Kovac, V., Roset, N., Schabuss, M., Segurado, P., Schuetz, C., Storey, G., Urbanic, G., Vehanen, T., Virbickas, T. & Zogaris, S. (2011). River Fish Intercalibration Group. WFD Intercalibration Phase 2. Milestone report 6, ECOSTAT, Report to the European Community, 105 p.
- R3. Pont, D., Beers, M., Buijse, T., **Delaigue, O.**, Ferrera, T., Jepsen, N., Kovac, V., Schabuss, M., Segurado, P., Schuetz, C. & Vehanen, T. (2009). River Fish Intercalibration Group. WFD Intercalibration Phase 2. Milestone report 1, ECOSTAT, Report to the European Community, 48 p.
- R2. Le Coarer, Y. & **Delaigue, O.** (2008). Cyref. Préférences d'habitats des cyprinidés. Projet Maîtrises. Cemagref, Aix-en-Provence, 48 p.
- R1. **Delaigue, O.**, Carrel, G. & Pont, D. (2007). Influence de la température sur la croissance des juvéniles de poissons Cyprinidae. Cemagref-EDF, Aix-en-Provence, 47 p.

#### Technical guide

- G1. Reyjol, Y., Spyrtos, V., Basilico, L., Archaimbault, V., Argillier, C., Bertrin, V., Boutry, S., Chauvin, C., **Delaigue, O.**, Delmas, F., Dutartre, A., Gevrey, M., Laplace-Treytore, C., Menay, M., Morin, S., Pont, D., Rosebery, J., Usseglio-Polettera, P., Mondy, C., Bouchez, A., Caquet, T., Rimet, F., Roucaute, M., Monnier, O., Stroffek, S. & Genin, B. (2013). *Bioindication : des outils pour évaluer l'état écologique des milieux aquatiques - Perspectives en vue du 2e cycle DCE - Eaux de surface continentales*. Les Rencontres de l'ONEMA. 56 p.

#### Manuals (latest versions)

- M4. Coron, L., **Delaigue, O.**, Thirel, G., Perrin, C. & Michel, C. (2020). *airGR: Suite of GR Hydrological Models for Precipitation-Runoff Modelling*. R package version 1.4.3.65, 91 p, DOI: 10.15454/EX11NA.
- M3. **Delaigue, O.**, Coron, L. & Brigode, P. (2020). *airGRteaching: Teaching Hydrological Modelling with GR Rainfall-Runoff Models (Shiny Interface Included)*. R package version 0.2.8.69, 17 p, DOI: 10.15454/WOSSKT.
- M2. Piazza, G. & **Delaigue, O.** (2020). *airGRdatassim: Suite of Tools to Perform Ensemble-Based Data Assimilation in GR Hydrological Models*. R package version 0.0.3.8, 7 p.
- M1. Pont, D., **Delaigue, O.** & Sidi, E. (2015). *Programme IPR+. Révision de l'indice poisson rivière pour l'application de la DCE. Manuel utilisateur*. ONEMA-IRSTEA. Partenariat 2014. Mise au point de l'indicateur poisson IPR+. Action 27, Antony, 109 p.

Symposiums

- C37. Mansanarez, V., Thirel, G., **Delaigue, O.** & Liquet, B. (2020). Development of a semi-distributed hydrological model on a tidal-affected river: application to the Adour catchment, France. 19th edition of the EGU general assembly. European Geosciences Union, Sharing Geoscience Online, 4-8 May 2020. [electronic]
- C36. Piazza, G., Thirel, G., Perrin, C. & **Delaigue, O.** (2020). Assessing sensitivity and persistence of updated initial conditions through Particle filter and EnKF for streamflow forecasting. 19th edition of the EGU general assembly. European Geosciences Union, Sharing Geoscience Online, 4-8 May 2020. [electronic]
- C35. Thirel, G., **Delaigue, O.** & Ficchi, A. (2020). Latest developments of the airGR rainfall-runoff modelling R package: inclusion of an interception store in the hourly model. 19th edition of the EGU general assembly. European Geosciences Union, Sharing Geoscience Online, 4-8 May 2020. [electronic]
- C34. Belliard, J., Beslagic, S., **Delaigue, O.**, Le Pichon, C., Tales, E. & Zahm, A. (2019). Évolution à long terme des peuplements de poissons du bassin de la Seine. 31e édition du PIREN-Seine. CNRS, Paris, 11-13 Dec. 2019. [oral]
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- C32. Nicolle, P., Lebecherel, L., Mauduit, C., **Delaigue, O.** Ben Hassen, F., Chevaleraud, Y. & Perrin, C. (2019). Modélisation hydrologique en contexte peu jaugé: vers une meilleure connaissance des dynamiques d'étiages à mayotte. Sécheresses, étiages et déficits en eau. Société hydrotechnique de France, Paris, 28-29 Nov. 2019.[oral]
- C31. Tilmant, F., Nicolle, P., Besson, F., **Delaigue, O.**, Francois, D., Le Lay, M., Perrin, C., Regimbeau, F., Thiéry, D., Magand, C., Leurent, T. & Jacob, E. (2019). PREMHYCE: un outil opérationnel pour la prévision des étiages. Sécheresses, étiages et déficits en eau. Société hydrotechnique de France, Paris, 28-29 Nov. 2019. [oral]
- C30. **Delaigue, O.**, Thirel, G., Coron, L., Brigode, P. & Andréassian, V. (2019). Les modèles pluie-débit GR en open source pour l'enseignement et la recherche. 3es Journées de modélisation des surfaces continentales. Sorbonne Université, Paris, 14-15 Nov. 2019. [poster]
- C29. **Delaigue, O.**, Thirel, G., Coron, L. & Brigode, P. (2019). airGRteaching: understanding basic hydrological processes with a free open source. 27th edition of the IUGG General Assembly. International Union of Geodesy and Geophysics, Montréal, 8-18 Jul. 2019. [oral]
- C28. Slater, L., Thirel, G., Harrigan, S., **Delaigue, O.**, Hurley, A., Khouakhi, A., Prodoscimi, I., Vitolo, C. & Astagneau, P. (2019). Using R in hydrology: recent developments and future directions. 27th edition of the IUGG General Assembly. International Union of Geodesy and Geophysics, Montréal, 8-18 Jul. 2019. [oral]
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- C26. Génot, B., **Delaigue, O.** & Lebecherel, L. (2019). Cross-referencing catchment data: how R can provide essential tools for the development of models for flood prediction. 15th edition of the International R User Conference. R Foundation Conference Committee, Toulouse, 9-12 Jul. 2019. [poster]
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- C17. **Delaigue, O.**, Thirel, G., Coron, L. & Brigode, P. (2018). Using the airGRteaching R package for hydrology courses using lumped hydrological models. 17th edition of the EGU general assembly. European Geosciences Union, Vienna, 8-13 Apr. 2018. [poster]

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- C12. Thirel, G., **Delaigue, O.**, Coron, L., Andréassian, A. & Brigode, P. (2017). airGRteaching: an R package designed for teaching hydrology with lumped hydrological models. 16th edition of the EGU general assembly. European Geosciences Union, Vienna, 24-28 Apr. 2017. [pico]
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- C10. Beslagic, S. & **Delaigue, O.** (2017). Du statut de nuisible à celui d'espèce protégée : la loutre en Belgique de la fin du 19e siècle à nos jours. Sales bêtes ! Mauvaises herbes ! "Nuisibles", une notion en débat. Association pour l'histoire de la protection de la nature et de l'environnement, Paris, 31 Jan. - 1 Feb. 2017. [oral]
- C9. Thirel, G., **Delaigue, O.**, Coron, L., Perrin, C. & Andréassian, A. (2016). airGR: an R-package suitable for large sample hydrology presenting a suite of lumped hydrological models. 49th edition of the AGU general assembly. American Geophysical Union, San Francisco, 12-16 Dec. 2016. [poster]
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- C5. Furusho, C., Lobligeois, F., Riffiod, F., **Delaigue, O.**, Dorchie, D., Perrin, C. & Andréassian, V. (2015). Comment concilier efficacité des modèles de prévision des crues et contraintes opérationnelles ? Gestion des risques d'inondations. Société hydrotechnique de France, Montreuil, 27-28 May 2015. [poster]
- C4. Tales, E., Beslagic, S., **Delaigue, O.**, Belliard, J., Stefani, F. & Wolter, C. (2014). Réponse des peuplements de poissons à l'urbanisation et aux altérations anthropiques à long terme des fleuves. 26e édition du PIREN-Seine. CNRS, Paris, 5-7 Feb. 2014. [oral]
- C3. Beslagic, S., **Delaigue, O.**, Marival, M., Petit, C. & Belliard, J. (2013). Fish settlements in the Seine River basin under Human pressures during the last two Centuries: contribution of historical data. 7th edition of ESEH conference. European Society for Environmental History, Munich, 20-24 Aug. 2013. [oral]
- C2. Beslagic, S., **Delaigue, O.** & Belliard, J. (2012). Evolution of the seine catchment fish communities: what does the historical data reveal? 1st edition of I.S. Rivers. GRAIE, Lyon, 26-28 Jun. 2012. [oral]
- C1. Beslagic, S., **Delaigue, O.**, Gorges, G., Tales, E. & Belliard, J. (2012). Évolution historique des peuplements de poissons dans le bassin de la Seine. 24e édition du PIREN-Seine. CNRS, Paris, 6-7 Feb. 2012. [oral]

## Seminars

- CS10. **Delaigue, O.** (2020). Utilisation des MNT et des SIG pour la modélisation hydrologique. Séminaire SIG/téledétection. IPGP, université de Paris & université Gustave Eiffel, IPGP, Paris, 20 novembre 2020. [oral]
- CS9. Thirel, G. & **Delaigue, O.** (2019). Découverte de la modélisation hydrologique GR à l'aide des packages R airGR et airGRteaching. idealCO, Paris, 10 May 2019. [webinar]
- CS8. Beslagic, S. & **Delaigue, O.** (2016). Histoire d'une espèce malmenée : la loutre en Wallonie (fin 19e - début 20e siècles). Les Midis de l'Histoire. Univ de Namur, Namur, 28 Apr. 2016. [oral]
- CS7. **Delaigue, O.** & Tallec, G. (2015). Outils pour l'observation long terme de l'environnement. Validation et bancarisation. Atelier technique RESOMAR. Mesure haute fréquence dans les réseaux SOMLIT et HOSEA, Ifremer, Brest, 15-16 Oct. 2015. [oral]
- CS6. Blanchouin, A., **Delaigue, O.**, Ansart, P., Guérin, A., Flourey, P., Gaillardet, J. & Tallec, G. (2015). Validation des données haute fréquence sur l'observatoire ORACLE. Réseau des bassins versants, Paris, 6-7 Sep. 2015. [poster]
- CS5. Beslagic, S., **Delaigue, O.**, Gorges, G. & Belliard, J. (2012). Apport des documents historiques dans la compréhension de l'évolution des communautés piscicoles. Biodiversité aquatique : quelles pistes pour la gestion des rivières et plans d'eau ? ONEMA, Paris, 14-15 Nov. 2012. [oral]
- CS4. **Delaigue, O.** & Reyjol, Y. (2012). Principes généraux de la bioindication. Panorama des nouvelles méthodes développées. Commission Ressources en eau et milieux aquatiques. Association scientifique et technique pour l'eau et l'environnement, Nanterre, 18 Oct. 2012. [oral]
- CS3. Pont, D., **Delaigue, O.** & Belliard, J. (2011). Présentation du nouvel indicateur poisson rivière IPR+. Les Méthodes d'évaluation de l'état des eaux : situation et perspectives dans le contexte de la DCE. ONEMA, Paris, 19-20 Apr. 2011. [oral]
- CS2. Pont, D. & **Delaigue, O.** (2010). Intercalibration of fish-based methods to assess river ecological quality – Annex V process + River fish IC group: testing intercalibration methods. Drafting Group meeting on Intercalibration Comparability Criteria. ECOSTAT, Ispra, 26-27 Aug. 2010. [oral]

- CS1. **Delaigue, O.** (2008-2011). River-Fish Intercalibration meetings. ECOSTAT. Sharfling, 25-26 Nov. 2008; Dublin, 27-29 May 2009; Edimbourg, 14-16 Oct. 2009; Düsseldorf, 2-4 Jan. 2010; Paris, 22-23 Apr. 2010; Langenargen, 23-25 Jun. 2010; Bratislava, 2-4 Feb. 2011; Ljubljana, May 2011; Ispra, 27-28 Jun. 2011. [oral]

## Databases

### Hydrobiology

- DB1. **Delaigue, O.** & ECOSTAT European Group (2011). *WFD intercalibration of fish-based methods to assess river ecological quality*. Joint Research Centre of the European Commission.

### Hydroclimatology

- DH2. Brigode, P., Génot, B., Lobligeois, F. & **Delaigue, O.** (2020). *Summary sheets of watershed-scale hydroclimatic observed data for France*. Université Paris-Saclay, INRAE, HYCAR Research Unit, Hydrology group, Antony. DOI: 10.15454/UV01P1.
- DH1. **Delaigue, O.**, Génot, B., Lebecherel, L., Brigode, P. & Bourgin, P.Y. (2020). *Database of watershed-scale hydroclimatic observations in France*. Université Paris-Saclay, INRAE, HYCAR Research Unit, Hydrology group, Antony. <https://webgr.inrae.fr/activites/base-de-donnees/>.

### Hydrology and Biogeochemistry

- DC2. Arpin-Pont, F., Ansart, P., Azougui, A., Barral, H., Blanchouin, A., Cappelaere, B., Chazarin, J.P., Cohard, J.M., **Delaigue, O.**, Demarty, J., Guerin, A. & Tallec, G. (2020). Flux tower by eddy covariance & infrared scintillometry on the ORACLE observatory. DOI: 10.15454/M7OK9E.
- DC1. Tallec, G., Ansart, P., Guérin, A., **Delaigue, O.** & Blanchouin, A. (2015). *ORACLE observatory*. DOI: 10.17180/OBS.ORACLE.

## Computer softwares (latest versions)

### Hydrobiology

- SB2. Corneil, D., Mondy, C., **Delaigue, O.**, Pont, D., Logez, M., Marzin, A. & Sidi, E. (2018). *IPR+: River Fish Index for the Assessment of the Ecological Quality of Rivers in Metropolitan France*. Version 1.0.3, <http://seee.eaufrance.fr/>. [développeur] [2008-2012]
- SB1. Le Coarer, Y., Languille, P. & **Delaigue, O.** (2008). *5M7: A Model to Build River-Specific Fish Trajectories*. [contributeur] [2007-2008]

### Hydrology

- SH7. Coron, L., **Delaigue, O.**, Thirel, G., Perrin, C. & Michel, C. (2020). *airGR: Suite of GR Hydrological Models for Precipitation-Runoff Modelling*. R package version 1.4.3.65, DOI: 10.15454/EX11NA, <https://CRAN.R-project.org/package=airGR>. [maintainer, developer] [since 2016]
- SH6. **Delaigue, O.**, Coron, L. & Brigode, P. (2020). *airGRteaching: Teaching Hydrological Modelling with GR Rainfall-Runoff Models (Shiny Interface Included)*. R package version 0.2.8.69, DOI: 10.15454/W0SSKT, <https://CRAN.R-project.org/package=airGRteaching>. Web app, <https://sunshine.irstea.fr/app/airGRteaching>. [maintainer, developer] [since 2017]
- SH5. **Delaigue, O.**, Génot, B., Coquemont, L. & Bertrand, R. (2020). *basinSample: Selection of French catchments based on hydroclimatic and morphological criteria*. Web app, <https://sunshine.irstea.fr/app/basinSample>. [maintainer, developer] [since 2019]
- SH4. Génot, B., **Delaigue, O.**, Andréassian, V. & Brigode, P. (2020). *profilsHydro: Mapping of streamflows longitudinal profiles of French rivers*. Web app, <https://sunshine.irstea.fr/app/profilsHydro>. [developer] [since 2019]
- SH3. Génot, B., **Delaigue, O.**, Andréassian, V. & Poncelet, C. (2020). *airGRmaps: Mapping of GR model parameters in France (for ungauged basins)*. Web app, <https://sunshine.irstea.fr/app/airGRmaps>. [developer] [since 2019] [contributor] [2019]
- SH2. Piazza, G. & **Delaigue, O.** (2020). *airGRdatassim: Suite of Tools to Perform Ensemble-Based Data Assimilation in GR Hydrological Models*. R package version 0.0.3.8, <https://gitlab.irstea.fr/HYCAR-Hydro/airgrdatassim>. [maintainer, developer] [since 2020]
- SH1. Slezziak, P. & **Delaigue, O.** (2019). *TUWteaching: Web application for hydrology modelling*. Web app, <https://webaapptuwmodel.shinyapps.io/TUWteaching/>. [developer] [2019]

## Websites (latest updates)

- W3. **Delaigue, O.**, Thirel, G. & Bourgin, F. (2020). *airGR: the INRAE GR Hydrological Models in a R Package*. <https://hydroGR.github.io/airGR/>. [maintainer, developer, writer] [since 2016]
- W2. **Delaigue, O.** & Thirel, G. (2020). *airGRteaching: Teaching Hydrological Modelling with GR*. <https://hydroGR.github.io/airGRteaching/>. [maintainer, developer, writer] [since 2017]
- W1. Ramos, M.H., Thirel, G. & **Delaigue, O.** (2020). *webGR: Catchment Hydrology research group, Irstea Antony*. <https://webgr.inrae.fr/>. [maintainer, writer] [since 2015]