

BERTIN Xavier
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Institut du Littoral et de l'Environnement (ILE)
Université de La Rochelle
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Tel.: (+33) 05 46 50 76 36

Age: 31
Nationality: French
Date of birth: 12 novembre 1978
Place of birth: La Rochelle (France)

Researcher in coastal dynamics and oceanography

Previous professional positions

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|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2010- | Research officer at CNRS, UMR 6250 LIENSs of La Rochelle University (France) |
| 2008-2010 | Research officer at the division of estuaries and coastal zones of the National Civil Engineering Laboratory of Lisbon (LNEC). |
| 2006-2008 | Marie Curie Post-Doctoral fellowship at the National Civil Engineering Laboratory of Lisbon (LNEC). Objective: improving a morphodynamic modelling system. |
| 2005-2006 | Research and teaching assistant (ATER) at La Rochelle University, France. Objective: development of new methods to study wave dominated beaches. |
| 2002-2005 | Teaching assistant at La Rochelle University, France. |

Academic degrees

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| 2002-2005 | PhD thesis , speciality: Marine Geology-Oceanography. "Morphodynamic and modelling of a tidal bay/ inlet system: the Marennes-Oléron Bay and Maumusson Inlet, France". University of Rochelle, France. Supervisor: Dr. Eric Chaumillon. <i>Defended 21 sept.2005, Obtained with honours.</i> |
| 2001-2002 | Post graduate degree "géomatériaux-eau: transfert et interactions". University of La Rochelle, University of Poitiers, France. <i>Obtained with honours and top of one's year.</i> Dissertation: " <i>Morphodynamic evolution and internal architecture of a tidal inlet: the Maumusson Inlet, France. Contributions of VHR seismic and bathymetric survey</i> ". Supervisor: Dr. Eric Chaumillon. |
| 2000-2001 | Master of earth sciences . University of La Rochelle. <i>Obtained with honours.</i> Dissertation: " <i>Dynamic of wave dominated coasts</i> ". Supervisor: Dr. Eric Chaumillon. |
| 1999-2000 | Licence of earth sciences . University of La Rochelle. <i>Obtained with honours.</i> |

Scientific skills

Hydrodynamic and morphodynamic modelling: tide, waves and related sediment transport. Coupling between wave and circulation model. Development of a 2D morphodynamic model. Implementation of adaptative time step. Implementation of 3D radiation stresses in a circulation model.

Hydrodynamic and sediment dynamic characterisation: Acquisition and processing (temporal, spectral) of water levels, currents and wave data; sediment tracers techniques.

Geographic Information Systems (G.I.S.): data acquisition, numerisation of historical maps, georeferencement (Arcview 3.2 and 8.2), processing (Surfer, Matlab, Fortran)

HR (Sparker system) and **VHR** (Seistec system) **seismic:** Cruise pre-organisation, electronic installations, data acquisition and real time processing (Delph system). Data post-processing (Seismic Unix software).

Participations in research project

MOWADI (2010-2012). Tridimensional morphodynamic modelling of wave-dominated inlets. Project funded by the Portuguese research and technology agency (FCT).

SANDEX (2007-2010). Sand extraction in the Portuguese continental shelf: impacts and morphodynamic evolution. Project funded by the Portuguese research and technology agency (FCT).

MADYCOS (2008-2010). Multidisciplinary Integrated Analysis of the Sediment Dynamics and Fecal Contamination in Intermittent Coastal Systems. Project funded by the Portuguese research and technology agency (FCT).

G-CAST (2007-2010). Application of GRID-computing in a coastal morphodynamics nowcast-forecast system. Project funded by the Portuguese research and technology agency (FCT).

IMMATIE (2006-2008). Improvement of a Morphodynamic Modelling system applied to Tidal Inlet Environments. Marie Curie EIF Hosted at LNEC of Lisbon.

SATURN (2005-2007). Sand Transport in surface waters: an uncertainty analysis. Project funded by the Portuguese research and technology agency (FCT).

EMERA (2005-2008). Morphodynamic of the Aveiro Inlet (Portugal). Project funded by the Portuguese research and technology agency (FCT)

PNEC-ART7 (2005-2006). French national coastal environment program. Financial support for the end of the applicant PhD.

Scientific publications in international journals

Papers submitted or in revision

- [AR.27] **Bertin X.**, Fortunato, A.B. and Oliveira A., in preparation. Morphodynamic modeling of tidal inlet downdrift migration: the case Ancão Inlet, South Portugal. In preparation for Continental Shelf Research.
- [AR.26] Allard, J., Chaumillon, E., **Bertin, X.**, Ganthly, F. and Poirier C., 2009. Secular morphological evolution and Holocene stratigraphy of a macro tidal bay: the Marennes-Oléron Bay (SW France). In press to *Bulletin de la Société Géologique de France*.

Papers already published or in press

- [AR.25] Allard, J., Chaumillon, E., **Bertin, X.**, Ganthly, F. and Poirier C., 2010. Secular morphological evolution and Holocene stratigraphy of a macro tidal bay: the Marennes-Oléron Bay (SW France). In press to *Bulletin de la Société Géologique de France*.
- [AR.24] Plecha, S., Vaz, N., **Bertin, X.**, Silva, P., Oliveira, A., Fortunato, A.B. and Dias, M.A., 2010. Sensitivity analysis of a morphodynamic modeling system applied to a coastal lagoon inlet. In press to *Ocean Dynamics*.
- [AR.23] Dodet, G., **Bertin, X.**, and Taborda, R., 2010. Wave climate variability in the North-East Atlantic Ocean over the last six decades. *Ocean Modelling* 31, 120-131.
- [AR.22] Lopes, V, Silva, P.A., **Bertin, X.**, Fortunato, A.B. and Oliveira, A., 2009. Impact of a Dredged Sandpit on Tidal and Wave Hydrodynamics. *Journal of Coastal Research* SI 56, 10-14.
- [AR.21] **Bertin, X.**, Fortunato, A.B. and Oliveira, A., 2009. Morphodynamic Modeling of the Ancao Inlet, South Portugal. *Journal of Coastal Research* SI 56, 10-14.
- [AR.20] Silva, P.A., **Bertin, X.**, Fortunato, A.B. and Oliveira, A., 2009. Intercomparison of Sediment Transport Formulas in Current and Combined Wave-Current Conditions. *Journal of Coastal Research* SI 56, 559-563.
- [AR.19] Azevedo, A., Oliveira, A., Fortunato, A.B. and **Bertin, X.**, 2009. Application of an Eulerian-Lagrangian oil spill modeling system to the Prestige accident: trajectory analysis. *Journal of Coastal Research* SI 56, 777-781.
- [AR.18] Castelle, B., Turner, I., **Bertin, X.** and Tomlinson, R., 2009. Beach nourishment at Coollangatta Bay (Australia) over the period 1987-2005: impacts and lessons. *Coastal Engineering* 59 (9), 940-950.
- [AR.17] Fortunato, A.B., **Bertin X.** and Oliveira A., 2009. Space and time variability of uncertainty in morphodynamic simulations. *Coastal Engineering* 56 (8), 886-894.
- [AR.16] **Bertin X.**, Fortunato, A.B. and Oliveira A., 2009. A modeling-based analysis of processes driving wave-dominated inlets. *Continental Shelf Research* 29, 819-834.

- [AR.15] Bertin X., Fortunato, A.B. and Oliveira A., 2009. Simulating morphodynamics with unstructured grids: description and validation of an operational model for coastal applications. *Ocean modeling* 28, 75-873.
- [AR.14] Dias, J., Sousa, M.C., Bertin X., Fortunato, A.B., and Oliveira A., 2009. Numerical modeling of the impacts of Ancão Inlet relocation (Ria Formosa, Portugal). *Environmental Modelling and Software* 24, 711-725.
- [AR.13] Allard, J., Bertin, X., Chaumillon, E. and Pouget, F., 2008. Sandspit rhythmic progradation: a potential record of wave climate variation? The Arçay sandspit, western coast of France. *Marine Geology* 253, 107-131.
- [AR.12] Bertin, X., Castelle, B., Chaumillon, E., Butel, R. and Quique, R., 2008. Estimation and inter-annual variability of the longshore transport at a high-energy dissipative beach: the St Trojan beach, SW Oléron Island, France. *Continental Shelf Research* 28, 1316-1332.
- [AR.11] Chaumillon, E., Bertin, X., Falchetto, H., Allard, A., Weber, N., Walker, P., Pouvreau, N., and Wöppelmann, G., 2008. Multi-scale evolution of a wide estuary linear sandbank, The longe de Boyard, Atlantic coast of France. *Marine Geology* 251, 209-223.
- [AR.10] Bertin, X., Castelle, B., Anfuso, G. and Ferreira, O., 2008. Improvement of the mixing depth prediction under conditions of oblique wave breaking. *Geo-Marine Letters* 28, 65-75.
- [AR.9] Sennes, G., Castelle, B., Bertin, X., Mirfenderesk, H. and Tomlinson, R., 2007. Modelling of the Gold Coast Seaway tidal inlet, Gold Coast, Australia. *Journal of Coastal Research* SI 50, 1086-1091.
- [AR.8] Bertin, X., Deshouillieres, A., Allard, J. and Chaumillon, E., 2007. A new fluorescent tracer experiment improves understanding sediment dynamics of the Arcay sandspit (France). *Geo-Marine Letters* 27 (1), 63-69.
- [AR.7] Idier, D., Pedreros, R., Oliveros, C., Sottolichio, A., Choppin L., and Bertin, X., 2006. Importance de la houle dans la dynamique hydro-sédimentaire des Pertuis Charentais, *C.R. Géosciences* 338 (10), 718-726.
- [AR.6] Bertin X. and Chaumillon, E., 2006. Evidences for oyster farming implications in increasing sedimentation rates in a macrotidal bay: the Marennes-Oléron Bay, France. *Cahiers de Biologie Marine* 47 (1), 19-22.
- [AR.5] Bertin X. and Chaumillon E., 2005. New insights in shallow gas generation from VHR seismic and bathymetric data in the Marennes-Oléron bay, France. *Marine Geophysical Research* 26, 225-233.
- [AR.4] Bertin X. and Chaumillon E., 2005. Apports de la modélisation sur bathymétries anciennes dans la compréhension des bancs de sable estuariens. *C.R. Geosciences* 337, 1375-1383.
- [AR.3] Bertin X., Chaumillon E., Sottolichio, A. and Pedreros, R., 2005. Tidal inlet response to sediment infilling of the associated bay and possible implications of human activities: The Marennes-Oléron Bay and Maumusson Inlet, France. *Continental Shelf Research* 25, 115-1131.
- [AR.2] Chaumillon, E., Tessier, B., Weber, N., Tesson, M. and Bertin, X., 2004. Buried Sandbodies within Present-Day Estuaries (Atlantic Coast of France) Revealed by Very High Resolution Seismic Surveys. *Marine Geology* 211, 189-214.
- [AR.1] Bertin, X, Chaumillon E, Weber N and Tesson M, 2004. Morphological evolution and coupling with bedrock substratum at a mixed energy tidal inlet: the Maumusson inlet, France. *Marine Geology*, 204, 187-202.

Extended conference papers

- [AR.16] Rosa, J., Silva, P.A., **X. Bertin**, D. Gonçalves, A. Fortunato, L.M. Pinheiro. Dragagem de areias ao largo da costa algarvia. Estudo numérico da evolução de uma escavação. Accepted to Antropicosta.
- [AR.15] Pires, R., Freitas, M.C., Andrade, C., Ramos, R., Ferreira, O., Pacheco, A., Nahon, A., Antunes, C., Fortunato, A. B., **Bertin, X.**, Oliveira, A., Taborda, R., Cruces, C., Silva, A., 2009. Morfodinâmica de uma barra de maré efémera (Lagoa de Santo André, SW Portugal). 6º Simposio sobre el Margen Ibérico Atlántico MIA09, 1-5th December of 2009, Oviedo, Spain.
- [AR.14] Almeida, C., Silva, P., Hadden, A. , Amador, M. José, C and **Bertin, X.** 2009. Energetic Potential Evaluation of the tidal energy in Ria Formosa. 1º Seminário sobre Gestão de Bacias Hidrográficas “As Regiões do Norte e as Perspectivas Futuras de Gestão”, FEUP, ISBN.
- [AR.13] Lopes, V., Silva, P.A., **Bertin, B.**, Fortunato, F., Oliveira, A.. 2009. Dinâmica Sedimentaria alrededor de una excavacion. a X Jornadas Espanholas de Costas e Puertos, Santander Maio 2009, livro de resumos, 221-222.
- [AC.12] Fortunato, A.B., Pinto, L., Freire, P., **Bertin, X.** and Oliveira, A., 2008. Sand transport in surface waters: an uncertainty analysis. 8th. World Congress on Computational Mechanics (WCCM8), Venice, Italy.
- [AC.11] Castelle, B., Turner, I., **Bertin, X.** and Tomlinson, R., 2008. Rechargement de la baie de Coolangatta (Australie) : impacts et leçons. *X^{èmes} Journées Nationales Génie Côtier-Génie Civil*, Sofia Antipolis 2008, France.
- [AC.10] **Bertin, X.**, Fortunato, A. and Oliveira, A., 2008. Processus conduisant les embouchures tidales dominées par la houle au comblement. Exemple de l’embouchure de Óbidos, Portugal. *X^{èmes} Journées Nationales Génie Côtier-Génie Civil*, Sofia Antipolis 2008, France.
- [AC.9] Oliveira, A., Rodrigues, M., Fortunato, A.B. and **Bertin, X.**, 2009. Numerical analysis of the impact of morphodynamics on the water quality of a coastal lagoon. Proc. Of the 10th International Conference on Estuarine and Coastal Modeling, Newport, Rhode Island, USA, 3-7 nov. 2007.
- [AC.8] Vaz, N., Plecha, S., **Bertin, X.**, Silva, P., Oliveira, A, Fortunato, A.B. and Dias, J.M.A., 2008. Sensitivity analysis of a morphodynamic modelling system applied to a coastal lagoon inlet. 6ª Assembleia Luso Espanhola de Geodesia e Geofísica, Tomar 2008, Portugal, 521-522.
- [AC.7] M.C. Sousa, X. **Bertin**, A.B. Fortunato, A. Oliveira, J.M. Dias, 2008. Numerical Modeling of the Pathways of Contaminants in the Ria Formosa (Portugal). 6ª Assembleia Luso Espanhola de Geodesia e Geofísica, Tomar 2008, Portugal, 491-492.
- [AC.6] **Bertin, X.**, Fortunato, A. and Oliveira, A., 2007. Sensitivity analysis of a morphodynamic model applied to a Portuguese tidal inlet. *5th IAHRD symposium on river, coastal and estuarine morphodynamics (RCEM 2007)*, Dohmen-Janssen, C.M. e Hulsher S.E. [eds.], Université de Twente (Hollande), 17-21 Septembre 2007, 11-17.
- [AC.5] **Bertin X.**, Pouvreau, N., Chaumillon, E. and Wöppelmann, G., 2006. Modélisations sur bathymetries historiques: une possible alternative aux modélisations morphodynamiques à long terme. *IX^{èmes} Journées Nationales Génie Côtier-Génie Civil*, Brest 2006, France.

- [AC.4] Idier, D., Pedreros, R., Oliveros, R., Sottolichio, A., Choppin, L. and **Bertin X.**, 2006. Importance de la houle dans la dynamique hydro-sédimentaire des Pertuis Charentais. *IX^{èmes} Journées Nationales Génie Côtier-Génie Civil*, Brest 2006, France.
- [AC.3] **Bertin X.**, Chaumillon E., Weber N. and Tesson M., 2003, Morphological evolution and coupling with bedrock substratum at a mixed energy tidal inlet: The Maumusson inlet, France. In: Sanchez-Arcilla A and Bateman A (Ed), *Proceedings of the 3rd IAHRD symposium on river, coastal and estuarine morphodynamics (RCEM 2003)*, IAHRD publication, Madrid, Spain: 494-503.
- [AC.2] Chaumillon E., **Bertin X.**, Weber N. and Tesson M., 2003, Internal architecture and sedimentary facies of a macrotidal bay: implication in terms of morphodynamics (The Marenne-Oléron bay, Atlantic coast of France). In: Sanchez-Arcilla A and Bateman A (Ed), *proceedings of the 3rd IAHRD symposium on river, coastal and estuarine morphodynamics (RCEM 2003)*, IAHRD publication, Madrid, Spain: 423-432.
- [AC.1] **Bertin X.**, Chaumillon E. and Sottolichio, A., 2004. Evolution d'une embouchure tidale en réponse au comblement de la baie associée : la baie de Marennes-Oléron et le Pertuis de Maumusson (Littoral Atlantique, France). *VIII^{èmes} Journées Nationales Génie Côtier-Génie Civil*, Compiègne, Septembre 2004.

Conference abstracts

- [RC.17] Vaz, N., Plecha, S., **Bertin, X.**, Silva, P., Oliveira, A., Fortunato, A.B. and Dias, J.M., 2008. Sensitivity analysis of a morphodynamic modelling system applied to a coastal lagoon inlet. 6^a Assembleia Luso Espanhola de Geodesia e Geofísica, Tomar, Portugal, 11-14 février 2008.
- [RC.16] Sousa, M.C., **Bertin, X.**, Fortunato, Oliveira, A. and Dias, J.M., 2008. Numerical Modeling of the Hydrodynamic of the Ria Formosa and the Impact of the new Ancão Inlet Relocation. 6^a Assembleia Luso Espanhola de Geodesia e Geofísica, Tomar, Portugal, 11-14 février 2008.
- [RC.15] Sousa, M.C., **Bertin, X.**, Fortunato, Oliveira, A. and Dias, J.M., 2008. Numerical Modeling of the Pathways of Contaminants in the Ria Formosa and the Impact of the new Ancão Inlet Relocation. 6^a Assembleia Luso Espanhola de Geodesia e Geofísica, Tomar, Portugal, 11-14 février 2008.
- [RC.14] Oliveira, A., Fortunato, A., Rodrigues, A., **Bertin, X.**, Azevedo, A., Pinto, L. and Fernandes, J.P., 2008. Modelação integrada de processos físicos e de qualidade da água em zonas costeiras: abordagem e exemplos. 2^a Conferência nacional de métodos numéricos em mecânica de fluidos e termodinâmica 2008, Universidade de Aveiro, Portugal, 8 et 9 mai 2008.
- [RC.13] Oliveira, A., Fortunato, A., **Bertin, X.** and Rodrigues, M., 2007. Análise integrada de processos físicos e de qualidade da água em lagunas, 1^o Seminário Sobre Conservação e Gestão de Zonas Húmidas, 12 de Outubro de 2007, Peniche, Portugal.
- [RC.12] **Bertin, X.**, Fortunato, A. and Oliveira, A., 2007. Modélisation morphodynamique de l'embouchure tidale d'Ôbidos, Portugal. 11^{ème} congrès Français de sédimentologie, Université de Caen, octobre 2007.

- [RC.11] Allard, J., Chaumillon, E. and **Bertin, X.**, 2007. La progradation d'un flèche sableuse peut elle enregistrer des variations du climat de houle ? 11^{ème} congrès Français de sédimentologie, Universidade de Caen, octobre 2007.
- [RC.10] **Bertin X.**, Chaumillon Eric, Quicque Robin, Butel Rémi and Castelle Bruno, 2005. Estimation et variabilité interannuelle de la dérive littorale sur une plage dissipative , SW Oléron, France. 10^{ème} congrès Français de sédimentologie, Presqu'île de Giens, França, 11-13 octobre 2005.
- [RC.9] Chaumillon Eric, **Bertin Xavier**, Billeaud Isabelle, Libaud Jean-Baptiste and Weber Nicolas, 2005. Importance des études aux échelles millénaires et séculaires dans la compréhension de la dynamique sédimentaire actuelle des environnements côtiers : exemples sur les côtes Charentaises, France. 10^{ème} congrès Français de sédimentologie, Presqu'île de Giens, France, 11-13 octobre de 2005.
- [RC.8] Libaud Jean-Baptiste, Chaumillon Eric and **Xavier Bertin**, 2005. Evolution et processus de comblement millénaire et séculaire dans une baie tidale : exemple de la Baie de Marennes-Oléron, France. 10^{ème} congrès Français de sédimentologie, Presqu'île de Giens, França, 11-13 de Outubro de 2005.
- [RC.7] Idier Déborah, Pedreros Rodrigo, Sottolichio Aldo, Choppin Lorraine and **Bertin Xavier**, 2005. Importance de la houle dans la dynamique hydrosédimentaire des Pertuis Charentais. 10^{ème} congrès Français de sédimentologie, Presqu'île de Giens, France, 11-13 de Outubro de 2005.
- [RC.6] **Bertin X.**, Chaumillon E., Sottolochio A. and Nicolle A., 2004. Evolution d'une embouchure tidale en réponse au comblement de la baie associée : la baie de Marennes-Oléron et le Pertuis de Maumusson (Littoral Atlantique, France). Zone atelier PEVS/INSU - Baie du mont Saint Michel et ses bassins versants - Vasière de Brouage. La Rochelle, 3-4 Novembre 2004.
- [RC.5] **Bertin X.** and Chaumillon E., 2004. New insights in shallow gas generation thank to VHR seismic and bathymetric data in the Marennes-Oléron bay, France. IX^{ème} colloque d'océanographie du Golfe de Gascogne, Pau, Mai 2004.
- [RC.4] **Bertin X.**, Chaumillon E. and Sottolichio, A., 2004. Evolution morphodynamique d'un système baie/ embouchure tidale: La Baie de Marennes-Oléron et le Pertuis de Maumusson, France. Congrès de l'association des sédimentologues Français, Bordeaux, octobre 2003.
- [RC.3] **Bertin, X.** and Chaumillon, E., 2004. Historical modelling of tidal circulation in bay and estuaries evidence the key role of bathymetric changes. 23rd IAS meeting of sedimentology, Coimbra, Portugal, 15-17 septembre 2004.
- [RC.2] Chaumillon, E., **Bertin, X.**, Billeaud, I., Weber, and N., 2004. Very high resolution seismic profiling in shallow water environment: a new tool for high frequency environment changes recorded in coastal sediments. 23rd IAS meeting of sedimentology, Coimbra, Portugal, 15-17 septembre 2004.
- [RC.1] **Bertin X.** and Chaumillon E., 2003. VHR seismic profiling records of last centuries sedimentary changes in a macrotidal bay (Marennes-Oléron Bay, Atlantic coast of France). Prodelta technology forum, Deltech International workshop, Venice, Italy, 5-9 mai 2003.

Other information

→ Orientation or co-orientation of graduate students and young researchers:

- Guillaume Dodet, 2008-2010, orientation of his fellowship on the implementation of the WW3 model to the Northern Atlantic. Hindcast with reanalysed wind data.
- Alphonse Nahon, 2008-2010, orientation of his fellowship on the implementation of 3D radiation stresses within a circulation model.
- Vitor Lopes, 2008, co-orientation of his research fellowship on the morphodynamic modelling of sand pits.
- Magda de Sousa, 2007, orientation of her Licence Thesis on the numerical modelling of the impact of Ancão Inlet (Portugal) relocation.
- Florian Ganthy, 2007, orientation of his Msc thesis on the numerical modelling of the tidal distortion within a macrotidal Bay.
- Antoine Deshouillères, 2006, orientation of his Msc thesis on the measurement of longshore transport by fluorescent tracers in 3D.
- Robin Quique, 2005, orientation of his Msc thesis on the measurement of longshore transport by fluorescent tracers.

→ Expert for the international journals:

- *Continental Shelf Research*(2007)
- *Marine Pollution Bulletin* (2009)
- *Geo-marine letters* (2009)
- *Ocean Modelling*(2008)

→ Languages: - Fluent in French, English and Portuguese
 - Scholar level in German

→ Informatics: - Hardware: Windows, ms-dos, Unix
 - Programming: Matlab, Fortran 77 and 90, C-shell
 - Software: Arcview, Surfer, Seismic Unix, Word, Excel,
 Power Point, Illustrator, Photoshop, etc..

→ Car driving licence