

INFORMATIONS
PERSONNELLES

DESPINOY Marc

📍 BP A5, 98800 Nouméa (New Caledonia)

☎ (+687) 260830 📠 (+687) 97 90 84

✉ marc.despinoy@ird.fr

💬 Skype marc.despinoy

EMPLOI RECHERCHÉ

Research engineer in Remote Sensing, Head of the ESPACE-Dev laboratory at IRD in New Caledonia

EXPÉRIENCE
PROFESSIONNELLE

juin 2003–présent

Research Engineer in Remote Sensing and GIS

IRD (www.ird.fr)
BP A9, 98800 Nouméa (New Caledonia)

***Diachronic environmental analysis by the use of remote sensing
(high and very high spatial, spectral and temporal resolution) in New Caledonia***

2017-2019 - Leader of EURISTIC (Fonds Pacifique) project on cyclone impacts on Vanuatu, Fidji, New Caledonia and Wallis & Futuna, 40k€.

2017-2018 - Pacific Islands – Task leader for Resilences Post-Pam Vanuatu (Fonds Pacifique) - 45k€.

2015-2018 - IMMILA project (CNRT) : Impact of mining watersheds on the "watershed-river-estuary and shoreline" continuum. Participation in analyses of the evolution of the watershed (image processing and spatialization of phenomena, coastal erosion, land vegetation boundaries) - 300 k€.

2014-2016 - Leader of DYNAMIC (CNRT, South Province funding) for chlorophyll activities, forest fragmentation - 65 k€.

2014-2015 - GOPS (Observatory for the South Pacific) project : CLIVENC "CLimat et VEgétation en Nouvelle Calédonie". Study of the climate/vegetation relationship on the Aoupinié pilot site based on MODIS Terra satellite imagery providing products adapted to this objective of vegetation analysis. Responsible for the satellite image processing axis.

2012-2015 - CNRT (Centre National de Recherche et Technologie) funding - Call for projects 2011. CoRiFor "Characterization of structural and functional connectivity of fragmented landscapes on ultramafic soils". Participation in the characterization of forest units by satellite imagery and modelling.

2012-2015 - MOM project (French Overseas ministry funding) on Risks and Emergencies of Infectious Diseases in New Caledonia: Sociospatial Approaches. Participation in spatialization of land cover information layers.

2010-2014 - CNRT (Centre National de Recherche et Technologie) call for project 2009 : work on small watershed operations - Participation in the development of spatial data processing model for land use analysis (zero point and temporal evolution) and sediment input index. Responsible for satellite image processing and sediment modelling.

2010-2012 - Leader of CARTHA project (CNRT funding) : Use of hyperspectral imaging data over the tropical mining environment - 134 k€.

2008-2012 - Task leader for INC (ANR) project : burnt areas and bush fires model - 335 k€ (task funding).

2007 - 2010 - CRISP/GERSA Project (French Foreign Affairs Ministry funding) - Co-leader for the spatialization of information and processing of satellite images task.

2006 - 2009 - SYRHEN Project (South Province of New Caledonia funding). Participation in the

processing of NOAA-AVHRR satellite data for the use of SST and Chl-a products.

Supervision of students

2016-2020 - Co-supervision of a PhD student (G. Rousset) on the use of deep learning in remote sensing (land use application).

2014 - Supervision of post-doctoral student (C. Gomez in CoRifor Project).

2011 - Supervision of post-doctoral student (F. De Boissieu in CARTHA Project).

2008-2010 - Co-supervision of a PhD student (Céline Gomez) on the use of THR (Quickbird) satellite image processing for characterization of coffee tree crown markers in New Caledonia. Expert model study of the spatial distribution of the hybrid species on a site; Statistical model (neural network and decision tree) of distribution prediction.

2006-2019 - Supervision of 6 Master (2nd year) students

janv. 2001–juin 2003

Research contractual

CIRAD, Montpellier (France)

- High and very high resolution images analysis for urban expansion (France)
- Use of hyperspectral imaging data for the management of cultivation (sugar cane) in tropical country (Reunion Island)
- Multitemporal analysis by remote sensing on palm tree exploitation (Nigeria)

 * Leader of Remote Sensing part of the RTE (Réseaux Terre et Espace - Ministry of Research) project "AGIL" (Aide à la Gestion Intégrée des Littoraux) - CIRAD.

* Project leader for CASI (Compact Airborne Spectrographic Imager) airborne image acquisition campaign and data processing within the AGIL project for the establishment of bathymetry of the "La Saline" reef plain (Reunion Island).

* Participation in the TEMOS project (Remote Sensing for the Study of Soil Occupancy Modes): updating of the IGN Topo database by SPOT5 imagery at 2.5 m (Reunion Island).

* Responsible for the remote sensing part of the study of a PPRIF (Plan de Protection des Risques des Incendies de Forêts - CIRAD/DDAF du Gard). Image processing for obtaining urban layers at the county level (Landsat TM) and at the communal level (Ikonos).

* Responsible for integrated project study on the management of an irrigated perimeter (Hadejia Valley - North Nigeria). Database management, remote sensing and GIS, training.

Supervision of students

3 trainees, Master level.

déc. 1999–déc. 2000

Research contractual

IRD, Montpellier (France)

Participation to the ROSELT programme (Network of Long Term

Environment Monitoring Observatories). Aim: Analysis of desertification in Saharan and Sahelian countries by remote sensing, GIS and Relational Database Management System.

Management of the data base of 15 African circum Saharian countries observatories, for use in desertification monitoring. Associated web site development.

ÉDUCATION ET FORMATION

fév. 1997–déc. 2000

PhD/French Doctorate in "Earth and Water Sciences"

Niveau 6 CEC

Université de La Réunion, St Denis (Réunion (France))

"High resolution spatial and spectral remote sensing potential in tropical island tropical environments". Targeted research on the relevance of remote sensing for environmental and planning decision

support.
Implementation of a decision support system on tropical environment in Reunion Island and French Guiana. CASI (Compact Airborne Spectrographic Imager) image processing.

sept. 1995–sept. 1996 **DEA Signal Physics/Treatment**
La Reunion University, St Denis (La Reunion (France))

sept. 1994–sept. 1995 **Master in Sciences (Msc) - Remote Sensing and GIS**
Silsoe College - Cranfield University, Cranfield (England)

COMPÉTENCES
PERSONNELLES

Langue(s) maternelle(s) français

Langue(s) étrangère(s)

	COMPRENDRE		PARLER		ÉCRIRE
	Écouter	Lire	Prendre part à une conversation	S'exprimer oralement en continu	
anglais	B2	C1	B1	B2	B2

Niveaux: A1 et A2: utilisateur élémentaire - B1 et B2: utilisateur indépendant - C1 et C2: utilisateur expérimenté
Cadre européen commun de référence pour les langues

Compétences en communication **Supervision** skills gained by supervising research programm and by supervising students.
Lecturer outside the University of Reunion Island and New Caledonia - teaching at the bachelor's level

Compétences organisationnelles/
managériales Leader of several research projects (see "Work experience" section)
Team coordination within the project
In charge of the laboratory ESPACE-Dev (UMR228) in New Caledonia

Compétences numériques

AUTOÉVALUATION				
Traitement de l'information	Communication	Création de contenu	Sécurité	Résolution de problèmes
Utilisateur expérimenté	Utilisateur expérimenté	Utilisateur expérimenté	Utilisateur expérimenté	Utilisateur expérimenté

Compétences numériques - Grille d'autoévaluation

Remote Sensing: ENV-IDL, ERDAS, eCognition, SPRING, GRASS, IDRISI, PCI
GIS: MapInfo, ArcGIS, QuantumGIS
Computer: R, C, IDL
Others: LaTeX

Autres compétences Travelling, Mountain bike, Golf, Trekking, Guitar
Powerboat Driving Licence

Permis de conduire A1, B

INFORMATIONS
COMPLÉMENTAIRES

Publications

- [1] G. Alory, A. Vega, A. Ganachaud, and M. Despinoy. Influence of upwelling, subsurface stratification, and heat fluxes on coastal sea surface temperature off southwestern new caledonia. *Journal of Geophysical Research*, 111(8):1–9, 2006. ISSN: 0148-0227.
- [2] E. Bappel, A. Begue, M. Despinoy, Y. Buchon, and B. Siegmund. Spectral indices as bio-indicators of sugar cane crop condition from hyperspectral casi data. In *Geoscience and Remote Sensing Symposium*, 2003. IGARSS apos; 03, volume 1, page 561-563. IEEE, july 2004.
- [3] P. Birnbaum, M. Mangeas, T. Ibanez, V. Hequet, C. Gomez, and M. Despinoy. Structural and functional connectivity in fragmented landscapes: Insights into conservation and restoration of new caledonian forests. 2nd Conference of SERA "From large to small islands", November 2014. DOI: 10.1117/12.869888.
- [4] Burgos, A., Despinoy, M., Sabinot, C., 2015. International Scientific Conference. Ethno-malacology in mangrove ecosystems: integrating local and scientific knowledge to assess socio-ecological variability and coastal change. "Our common future under climate change", July 2014. DOI: 10.1117/12.869888.
- [5] N. Chaussonot, J. Imbernon, and D. Marc. Promotion of participatory irrigation management in Hadejia Valley Irrigation Project, Nigeria: experiences on approaches, lessons and prospects. Samaru : Ahmadu Bello University, 2003.
- [6] F. de Boissieu, B. Sevin, T. Cudahy, M. Mangeas, S. Chevrel, C. Ong, A. Rodger, P. Maurizot, C. Laukamp, I. Lau, Touraivane, D. Cluzel, and M. Despinoy. Regolith-geology mapping with support vector machine: a case study over weathered ni-bearing peridotites, new caledonia. *International Journal of Applied Earth Observation and Geoinformation*, pages 3240–3255, 2016. <http://dx.doi.org/10.1016/j.jag.2017.05.012>.
- [7] F. de Boissieu, B. Sevin, M. Despinoy, S. Chevrel, T. Cudahy, A. Rodger, and C. Laukamp. Mapping of the regolith of new caledonia with airborne hyperspectral remote sensing. *European Association of Geoscientists and Engineers (EAGE/GRSG)*, September 2012, Paris. DOI: 10.1117/12.869888.
- [8] F. de Boissieu, B. Sevin, M. Despinoy, S. Chevrel, C. Laukamp, I. Lau, and T. Cudahy. Airborne hyperspectral mapping of the regolith of new caledonia. 34 th International Geological Congress, August 2012, Brisbane. DOI: 10.1117/12.869888.
- [9] M. Despinoy. L'oceanographie cotiere et la gestion integree des zones cotieres. (GIZC). volume 130, page 5. IOC (Intergovernmental Oceanographic Commission) /UNESCO, 1996.
- [10] M. Despinoy. Etude sur l'oceanographie cotiere l'ile de la reunion par teledetection multibande. pages 29–36. Septiemes journees du reseau de teledetection de l'UREF, October 1997.
- [11] M. Despinoy. Potentiel de la teledetection haute resolution spatiale et spectrale en milieu tropical insulaire. PhD thesis, Universite de La Reunion (Univ. Aix-Marseille), 2000.
- [12] M. Despinoy, M. Aubert. M. Barotin, and M. Mangeas. A case study on an improved method for very high spatial resolution satellite image classification: watersheds across the complex environment of high pacific islands. volume 7149. SPIE Asia-Pacific Remote Sensing (APRS), Noumea (New Caledonia), November 2008.
- [13] M. Despinoy and I. Jacques. Surveillance and monitoring of the reunion island with an airborne imaging spectrometer system : the compact airborne spectrographic imager (casi). *Integrated coastal zone management in small islands*, Los Baols, Philippines, 1999.
- [14] M. Despinoy and M. Mangeas. Dynamics of fragmentation of wet forest cores on ultramafic soils in new caledonia. The 37th International Symposium on Remote Sensing of Environment (ISRE37), May 2017. Tshwane, South Africa.
- [15] M. Despinoy, A. Minghelli-Roman, A. Begue, M. Petit, J. Coudray, and A. Barcelo. Airborne casi imagery for bathymetric study in reunion island (indian ocean). volume 4, pages 2368–2370.

Geoscience and Remote Sensing Symposium, IGARSS apos; 03., july 2004.

[16] M. Despinoy, M. Petit, A. Minghelli-Roman, and O. Naim. Hyperspectral remote sensing and high spatial resolution : a relevant tool for a cartography of coral reef systems. In ICRI, editor, Coral Reef Initiative (ICRI), 2000.

[17] C. Dupouy, A. Minghelli-Roman, M. Despinoy, R. Röttgers, J. Neveux, S. Ouillon, C. Pinazo, and M. Petit. Modis/aqua chlorophyll monitoring of the new caledonia lagoon: the valhybio project. in remote sensing of inland, coastal, and oceanic waters. volume 7150. SPIE, Bellingham, WA, 2008.

[18] C. Dupouy, A. Minghelli-Roman, M. Despinoy, R. Röttgers, J. Neveux, C. Pinazo, and M. Petit. Modis/aqua chlorophyll monitoring of the new caledonia lagoon during the 2008 la nina event. volume 7150. SPIE Asia-Pacific Remote Sensing (APRS), Noumea (New Caledonia), SPIE, November 2008.

[19] C. Dupouy, T. Savranski, J. Lefevre, M. Despinoy, M. Mangeas, R. Fuchs, V. Faure, S. Ouillon, and M. Petit. Monitoring optical properties of the southwest tropical pacific, in remote sensing of the coastal ocean, land, and atmosphere environment. Volume 7858, p. 14, 2010. DOI: 10.1117/12.869888.

[20] C. Gomez, A. Batti, D. L. Pierre, C. Campa, S. Hamon, A. de Kochko, P. Hamon, F. Huynh, M. Despinoy and V. Poncet. Favourable habitats for coffea inter-specific hybridization in central new caledonia: combined genetic and spatial analyse. Journal Applied of Ecology, 2009. DOI: 10.1111/j.1365-2664.2009.01762.x.

[21] C. Gomez, C. Corbane, M. Mangeas, M. Petit, A. DeKochko, A. Batti, P. Hamon, F. Huynh, S. Hamon, V. Poncet and M. Despinoy. Object detection method for classification on very high spatial resolution satellite image: a case study for environmental cartography of coffee species natural hybridization in new-caledonia. volume 7150. SPIE Asia-Pacific Remote Sensing (APRS), Noumea (New Caledonia), November 2008.

[22] C. Gomez, M. Despinoy, S. Hamon, P. Hamon, D. Salmon, S. Akaffou, H. Legnate, A. de Kochko, M. Mangeas and V. Poncet. Shift in precipitation regime promotes inter-specific hybridization of introduced plant species. Ecology and Evolution, 6(10):3240–3255, 2016. ISSN: 2045-7758.

[23] C. Gomez, M. Mangeas, T. Curt, T. Ibanez, J. Munzinger, P. Dumas, M. Despinoy, and C. Hely. Wildfire risk for main vegetation units in a biodiversity hotspot: modeling approach in New Caledonia, South Pacific. Ecology and Evolution ; 5(2): 377–390, 2015. ISSN 2045-7758

[24] C. Gomez, M. Mangeas, M. Petit, C. Corbane, P. Hamon, S. Hamon, A. D. Kochko, D. L. Pierres, V. Poncet, and M. Despinoy. Use of high-resolution satellite imagery in an integrated model to predict the distribution of shade coffee tree hybrid zones. Remote Sensing of Environment, 114:2731–2744, 2010. DOI: 10.1016/j.rse.2010.06.007.

[25] Barbero R., Moron V., Mangeas Morgan, Despinoy Marc, Hély C. Relationships between modis and atsr fires and atmospheric variability in new caledonia (sw pacific). Journal of Geophysical Research, 2011 , (116) p. D21110, ISSN: 0148-0227.

[26] M. Mangeas, J. Andre, C. Gomez, M. Despinoy, G. Wattelez, and T. Touraivane. A spatially explicit integrative model for estimating the risk of wildfire impacts in new-caledonia. International Journal of Parallel, Emergent and Distributed Systems, 0(0):1–16, 2018.

[27] M. Mangeas, M. Despinoy, 2019. Modelling fires and their impacts on biodiversity. Les dossiers d'AGROPOLIS International "COMPLEX SYSTEMS From biology to landscapes". P. 59, Number 23, February 2019. Ed. LPJ Hippocampe (Montpellier, France), ISSN: 1628-4259.

[28] V. Soti, A. Botta, A. Begue, M. Despinoy, and F. Colin. Contribution de la teledetection au suivi de la sensibilité des sols l'érosion l'échelle d'un bassin versant (île de la reunion). Revue Internationale de Geomatique, 15(4):439–459, 2005.

[29] R. Tantely, B. S., B. M., P. Michel, and D. Marc. Attributes of neural networks for extracting continuous vegetation variables from optical and radar measurements. International Journal of Remote Sensing, 19(14): 2623–2638, 1998.

[29] R. M. Zellweger, J. Cano, M. Mangeas, T. Taglioni, A. Mercier, M. Despinoy, C. Menkes, M. Dupont-Rouzeyrol, B. Nikolay, and M. Teurlai. Socioeconomic and environmental determinants of dengue transmission in an urban setting: an ecological study in Nouméa, New Caledonia. *PLoS Neglected Tropical Diseases*, 11 (4), e0005471.