

# Maéva A. TECHER

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Nationality: French  
Birth date: November 24, 1989

## ACADEMIC CURSUS

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- 2019-today**     **JSPS Post-doctoral Fellow researcher hosted in Prof. Alexander S. Mikheyev unit**  
Okinawa Institute of Science and Technology (OIST), Okinawa, Japan  
Retracing the origins, spread and evolution of the globally invasive honey bee Varroa mite by sequencing and analysing > 1,400 whole-genomes.
- 2016-2019**     **Post-doctoral Researcher in Prof. Alexander S. Mikheyev unit**  
OIST, Okinawa, Japan  
Population genomics and demographic inferences to understand the genetic basis and evolution of host switches in the Varroa mite – honey bee, host parasite system.
- 2012-2015**     **Ph.D. in Population Genetics and Ecology**  
University of La Réunion, France (overseas department)  
Genetic diversity, structure and admixture of native and introduced honey bee populations in the South West Indian Ocean islands. (Qualification: Congratulations)  
*Supervisors:* Dr. Johanna Clémencet, Dr. Hélène Delatte & Prof. Bernard Reynaud  
*Jury:* Dr. Lounès Chikhi, Dr. Lionel Garnery, Prof. Dominique Strasberg, Prof. Alain Vignal
- 2010-2012**     **Master of Sciences in Biodiversity and Tropical Ecosystems**  
University of La Réunion (Qualification: Excellent and top class for the two years)
- 2007-2010**     **Bachelor of Sciences in Biology of Organisms and Populations**  
University of La Réunion (Qualification: Above average)

## SKILLS AND COMPETENCES

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### *Computer skills:*

**Classical population genetics analysis** using microsatellites genotyping and mitochondrial sequencing.

**Whole genome sequencing analysis** (quality check, reads mapping, variant calling for population genomics analysis).

**Model-based inference of demographic history** using DIYABC and fastsimcoal2.

**Data science analysis and reproducibility** with Snakemake, unix-shell, R, markdown, and GitHub.

**Spatial data mapping** using QGIS and R.

**Graphical illustration editing** using Microsoft Office Package, Adobe Aura & Illustrator, Gimp, Inkscape.  
Certified “Effective Visual Communication” workshop by Seyens Ltd.

### *Strong wet laboratory skills:*

**DNA/RNA extraction** and quantification routine from diverse tissues and preservation conditions.

**NGS libraries preparation** with low input gDNA for HiSeq4000 and NovaSeq6000 Illumina platforms.

Proficient in **targeted methods** for mtDNA barcoding by RFLP or Sanger sequencing, microsatellites genotyping and SNP genotyping-by-sequencing (from design to validation).

**Measuring morphological traits** in non-destructive (arthropods) and destructive (angiosperms) using binocular/microscopy material mounted with camera.

#### *Fieldwork:*

Experience in experimental beekeeping, *in vitro* honey bee rearing and parasite collection/observation.

Insect field collection and sorting. Recording and direct observations of interactions among indigenous plants and animals-visitors, flora diversity inventory in quadrat (insular and tropical regions).

#### *Networking:*

Building from scratch a worldwide research collection for Varroa mites (contacting, creating MTA and import documents, shipments, processing samples in respect of the Convention on Biological Diversity).

#### *Languages:*

French and Creole (mother tongue), English (fluent), Spanish (novice) and Japanese (intermediate).

## GRANTS AND AWARDS

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- 2019**            **KAKENHI grant-in-aid for the Japan Society Promotion of Science (JSPS) fellows**
- 2019**            **JSPS postdoctoral standard fellowship** (joint call CNRS – JSPS)
- 2013-2014**    **Agreenium fellow travel grant** (Toulouse and Bordeaux, France)
- 2012-2015**    **Ph.D. national fellowship** (Science and Technology La Réunion Doctoral School)
- 2009**            **Travel award to the Darwin Conference 2009 at Cambridge, England**  
(winner of the 6<sup>th</sup> edition of the Rosalind Franklin Challenge, University of La Réunion)
- 2009**            **Expo sciences Reunion travel award to the Eskom Expo for Young Scientists**  
(University of Pretoria, South Africa)

## PUBLICATIONS

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### *Peer-reviewed*

- [1]     Traynor, K.S., Mondet, F., de Miranda, J. R., **Techer, M. A\***, Kowallik, V., Oddie, MAY., Chantawannakul, P., & McAfee, A. (2020). Varroa destructor: A Complex Parasite, Crippling Honey Bees Worldwide. *Trends in Parasitology*, 36(7), 592–606.  
\* *Data mining and creation of species haplotype distribution interactive map resource*  
<https://mikheyevlab.github.io/varroa-mtDNA-world-distrib/>
- [2]     Dukku, U. H., **Techer, M. A.**, & Vincent, S. N. (2020). A country-wide survey of Varroa destructor, an ectoparasitic mite of honey bees, in Nigeria: a preliminary report. *Journal of Apicultural Research*, 59(1), 59–62.
- [3]     **Techer, M. A.**, Rane, R. V., Grau, M. L., Roberts, J. M. K., Sullivan, S. T., Liachko, I., Childers, A. K., Evans, J. D., & Mikheyev, A. S. (2019). Divergent evolutionary trajectories following speciation in two ectoparasitic honey bee mites. *Communications Biology*, 2(1), 357.
- [4]     Wragg, D., **Techer, M. A.**, Canale-Tabet, K., Basso, B., Bidanel, J.-P., Labarthe, E., Bouchez, O., Le Conte, Y., Clémencet, J., Delatte, H., & Vignal, A. (2018). Autosomal and Mitochondrial Adaptation Following Admixture: A Case Study on the Honeybees of Reunion Island. *Genome Biology and Evolution*, 10(1), 220–238.

- [5] **Techer, M. A.**, Clémencet, J., Simiand, C., Turpin, P., Garnery, L., Reynaud, B., & Delatte, H. (2017). Genetic diversity and differentiation among insular honey bee populations in the southwest Indian Ocean likely reflect old geographical isolation and modern introductions. *PLoS One*, 12(12), e0189234.
- [6] **Techer, M. A.**, Clémencet, J., Simiand, C., Preaduth, S., Azali, H. A., Reynaud, B., & Hélène, D. (2017). Large-scale mitochondrial DNA analysis of native honey bee *Apis mellifera* populations reveals a new African subgroup private to the South West Indian Ocean islands. *BMC Genetics*, 18(1), 53.
- [7] **Techer, M. A.**, Clémencet, J., Simiand, C., Portlouis, G., Reynaud, B., & Delatte, H. (2016). Genetic diversity of the honeybee (*Apis mellifera* L.) populations in the Seychelles archipelago. *Insect Conservation and Diversity / Royal Entomological Society of London*, 9(1), 13–26.
- [8] Rasolofoarivao, H., Clémencet, J., **Techer, M. A.**, Ravaomanarivo, L. H. R., Reynaud, B., & Delatte, H. (2015). Genetic diversity of the endemic honeybee: *Apis mellifera unicolor* (Hymenoptera: Apidae) in Madagascar. *Apidologie*, 46(6), 735–747.
- [9] **Techer, M. A.**, Clémencet, J., Turpin, P., Volbert, N., Reynaud, B., & Delatte, H. (2015). Genetic characterization of the honeybee (*Apis mellifera*) population of Rodrigues Island, based on microsatellite and mitochondrial DNA. *Apidologie*, 46(4), 445–454.

### Preprints

**Techer, M. A.**, Roberts, J. M. K., Cartwright, R. A., & Mikheyev, A. S. (2020). The first steps toward a global pandemic: Reconstructing the demographic history of parasite host switches in its native range, bioRxiv. <https://doi.org/10.1101/2020.07.30.228320>  
<https://github.com/MaevaTecher/varroa-host-jump>

## ORAL PRESENTATIONS

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### Selected invited talks

- 2020** Invited speaker at the honey bee genomics workshop session at the 28th Plant and Animal Genome Conference (PAG XXVIII) at San Diego, California, USA. “Facing the War between Honey Bee and Mites: Genomic Insights into Varroa Global Success”.
- 2020** Invited speaker at the COLOSS (Prevention of honey bee Colony LOSSes) Asia Conference 2020 in Chiang Mai, Thailand. “World biogeography and population genomics of ectoparasitic Varroa mites”. From 45 mins to 1h08.  
<https://www.facebook.com/smartbee2018/videos/178515340227615/UzpfSTlxNjcxMzkwMTgwNDA5OToxNjQ0MTg3MzU1NzIzNDA2/>
- 2019** Invited speaker at the OIST Science Festival 2019, Okinawa, Japan. “The story of a traveling honey bee and a jumping mite. <https://www.oist.jp/science-festival-2019>”
- 2019** Invited speaker at ANU Canberra, Australia. “At the origin of a global invasion: the honeybee parasite that keeps on jumping”.
- 2018** Invited speaker by the EcoEncontros at the University of Sao Paulo, Brazil. “At the origin of a global invasion: the honeybee parasite that keeps on jumping.”
- 2017** Invited speaker by OIST Communication Section to the Science Trip to Miyako High School, Miyako-jima. Research personal experience from an islander perspective.

### Selected International conferences talks

- 2018** **Techer, M. A.**, Roberts, J.K and Mikheyev, A. S. Tracking genomics footprints of successful host switches in honey bee Varroa mites. *Eurbee 8*, Ghent, Belgium.
- 2018** **Techer, M. A.**, Roberts, J.K and Mikheyev, A. S. At the origin of a global invasion: the honeybee parasite that keeps on jumping. *IUSSI2018*, Guarujá, Brazil.

- 2016** **Techer, M. A.**, Clémencet, J., Simiand, C., Reynaud, B., Delatte\*, H. Genetic diversity and structure of *A. mellifera* in the South West Indian Ocean islands. Eurbee 7, Cluj-Napoca, Romania.
- 2014** **Techer, M. A.**, Clémencet, J., Simiand, C., Turpin, P., Reynaud, B. & Delatte, H. 2014. Unraveling the mysteries of honeybee in the Mascarene Islands. IUSSI2015, Cairns, Australia.

## POPULAR SCIENCE AND OUTREACH COLLABORATION

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- 2019** **Honey and Coral Project.** Collaboration for prevention of red soil erosion between the Ecology and Evolution and Onna Village Office, Agricultural Section, Okinawa.  
[www.oist.jp/news-center/news/2019/9/6/honeybees-help-save-okinawan-coral](http://www.oist.jp/news-center/news/2019/9/6/honeybees-help-save-okinawan-coral)
- 2019** **Guest at WonderLabs podcast** (Apple: [apple.co/2KP4pWl](https://apple.co/2KP4pWl), Google: [bit.ly/2StEUuX](https://bit.ly/2StEUuX))
- 2018** **Speaker at the 3<sup>rd</sup> Nerd Nite Okinawa.**
- 2016-2019** **OIST Science Festival.** Lead organizer of the booth “The wonderful world of honeybees” and creator of the “EcoEvo Quest” video game (.ppt support), Okinawa, OIST.
- 2017** Teacher at **Onna/OIST Children’s school of Science**, Okinawa.

## STUDENT SUPERVISION

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- 2020** **Nonno HASEGAWA, Ph.D. candidate**, OIST  
NGS using DNA/RNA of Varroa mites, co-supervised with Prof. Alexander Mikheyev.
- 2019** **Elroy KWAN-AU, Honour student**, ANU Canberra hosted at OIST  
Wet lab training for NGS of Fairy Wyvern bird museum samples.  
Supervised by Prof. Alexander Mikheyev
- 2015** **Julien GALATAUD, MSc student**, University of La Réunion.  
Morphometrics on honey bee wings, co-supervised with Dr. Johanna Clémencet.

## OTHER EXPERIENCES

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- 2017-2019** Member of the **Internal Seminar Series organizing committee**, OIST.
- 2017** Volunteer at the TEDxOIST, Okinawa.
- 2015** Volunteer at the IAEA research Tephritidae meeting, La Réunion.
- 2014-2016** **Ph.D. student delegate** at the UMR PVBMT and 3P platform.
- Reviewer at Apidologie, BioMed Research International, PeerJ, JAS, Entomological Science, Insects, Molecular Ecology (<http://publons.com/researcher/3098984/maeva-techer>)

## REFEREES

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