

Post-doctoral position

Dynamic Modelling & Network Analysis

Anses is recruiting a post-doctoral researcher in Dynamic Modelling and Network Analysis (M/F)

Location: Ploufragan (22440) – 24 month fixed term contract

Application deadline: 2026/04/17

Salary: Gross Salary about 3000€

Your missions

Attached to the Ploufragan Plouzané Niort Laboratory, the candidate will join the HODAS project consortium. This PEPR PREZODE programme aims to study and assess surveillance measures for the emergence of pathogens at the interface between wildlife and livestock, integrating population level data.

Livestock movements play a key role in pathogen spread across production chains. The candidate will develop network analysis approaches to characterise vulnerability and the potential for pathogen propagation within the pig and poultry sectors.

Your team

The Ploufragan Plouzané Niort Laboratory brings together more than 200 staff members across 8 research units, 1 joint technological unit, 3 experimental services, 1 administrative and financial service, and 1 quality management service. The laboratory holds 17 national reference mandates.

Within this structure, the Epidemiology, Health and Welfare Unit (EPISABE) conducts research to improve the understanding and management of health hazards in animal sectors (mainly pigs, poultry and rabbits), as well as zoonotic risks, antimicrobial use and resistance, and animal welfare. The unit contributes to the surveillance of regulated or economically important diseases. It also develops methodological and modelling tools.

You will therefore join a multidisciplinary team of about 30 permanent and temporary staff, with strong field engagement and recognised analytical expertise.

Your daily work

Activity 1 — Structuring and enhancing data for modelling and surveillance

You will design and oversee data acquisition and transformation processes to produce homogeneous, reliable datasets suited for modelling. Your contribution focuses on building a coherent data processing workflow integrating standardisation, quality and reproducibility.

Activity 2 — Analysing movement dynamics to anticipate health risks

You will analyse movement data to understand contact structures in production sectors, detect warning signals and develop innovative analytical approaches to strengthen early detection and surveillance. This activity aims to identify systemic vulnerabilities and support prevention strategies.

Activity 3 — Developing and applying epidemiological models on directed graphs

You will develop dynamic models integrating the directional structure of animal movements to simulate transmission processes and assess surveillance strategies.

Your expertise will help translate complex mechanisms into actionable indicators for decision makers.

Your profile

- PhD in epidemiology and modelling
- Experience in network analysis and epidemiological modelling

Your skills

- Scientific programming (R, Python, Git, reproducible environments)
- Advanced analysis of movement and network data
- Modelling on directed graphs
- Development of innovative early detection approaches
- Model evaluation (sensitivity, uncertainty, robustness)
- Scientific visualisation
- Basics of distributed computing and optimisation
- Ability to lead scientific projects
- Writing and oral communication skills
- Autonomy, methodological rigour, quality and reproducibility minds

How to apply

Send a motivation letter and CV before 30/04/2026, indicating reference 2026 031, to:
recrutement@anses.fr ; mathieu.andraud@anses.fr