



**Università  
degli Studi  
di Palermo**

CENTRO DI STUDI AVANZATI "A.S.CENT."

CENTRE OF ADVANCED STUDIES "A.S.CENT."

**The Director: Prof. Avv. Antonello MIRANDA**

*Full prof. of Comparative and European Law*



To kind attention of Prof. **ANTONELLO MIRANDA**  
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### FINAL REPORT

During my research stay in Palermo, Sicily, I worked on statistical modelling of wildfires with a particular focus on forecasting wildfire spread. The stay was closely connected to my PhD research and gave me the opportunity to develop the more applied side of my work in collaboration with local experts.

I was hosted at the **University of Palermo**, where I interacted with **Prof. Giada Adelfio** and Dr. **Nicoletta D'Angelo**, whose expertise in Hawkes processes and wildfire modelling was highly valuable for my project. This provided a great academic environment for discussing both methodological and applied aspects.

The main scientific focus of the stay was the development of a **Hawkes-type point process model for wildfires under bin-wise observation**. In the wildfire setting, satellite systems cannot observe ignitions continuously, which means that standard continuous-time formulations are not directly applicable. To address this, I worked on a theoretically motivated **binned ETAS-type model**, designed for situations where only aggregated or intermittent observations are available. Although motivated by wildfire data, this framework has potential applications far beyond this specific case whenever events are not observed in continuous time.

The stay was highly productive. It helped shape a **new and useful modelling framework**, strengthened my ongoing work for a **conference talk for METMA 2026**, and opened possibilities for future collaboration. One promising next step is to further improve the model by extending the current approach: for example, while the spatial triggering component was assumed to be given in the present work, it could also be developed through a bin-wise approximation in future research.

Overall, the stay was highly valuable for my PhD development, both scientifically and personally, and I greatly enjoyed my time in Palermo.

Signature

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