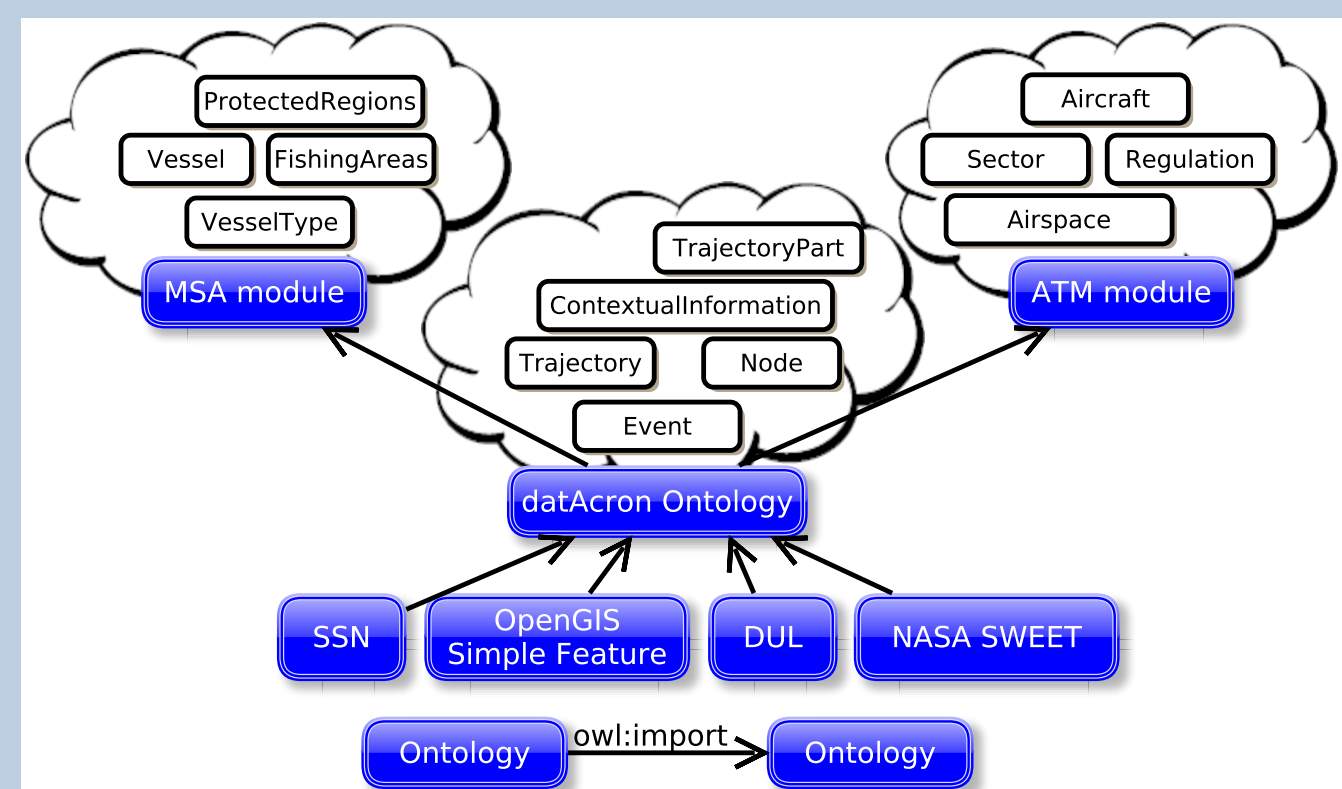


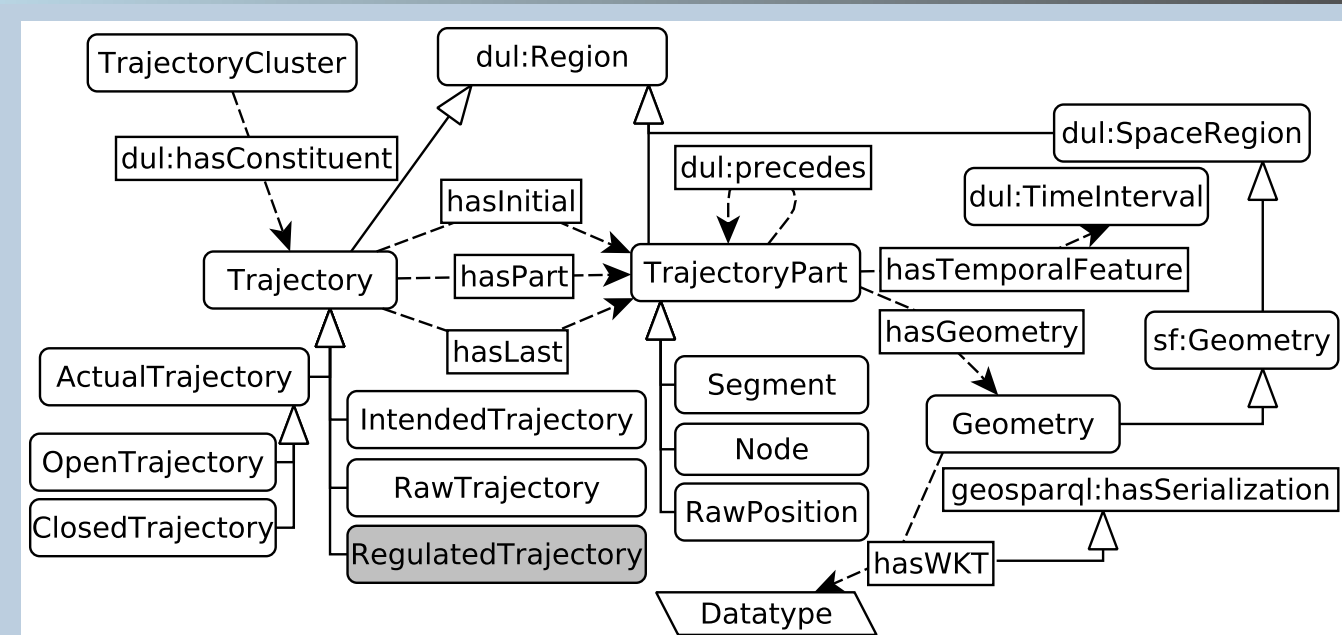
Abstract

Motivated by real-life emerging needs in critical domains, we propose a coherent and generic ontology for the representation of semantic trajectories, in association with related events and contextual information. *The main contribution of the proposed ontology is the representation of semantic trajectories at different levels of spatio-temporal analysis.*

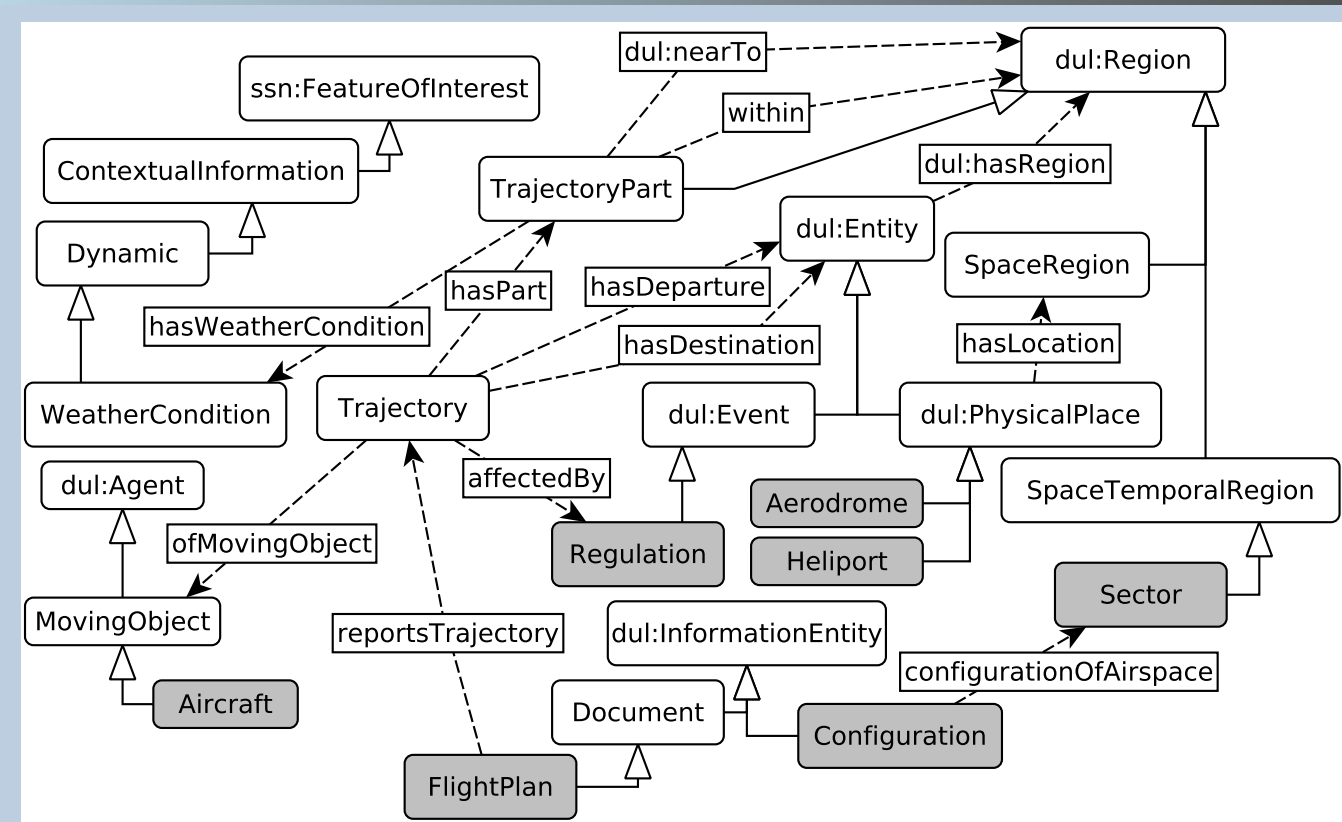
Ontology Imports



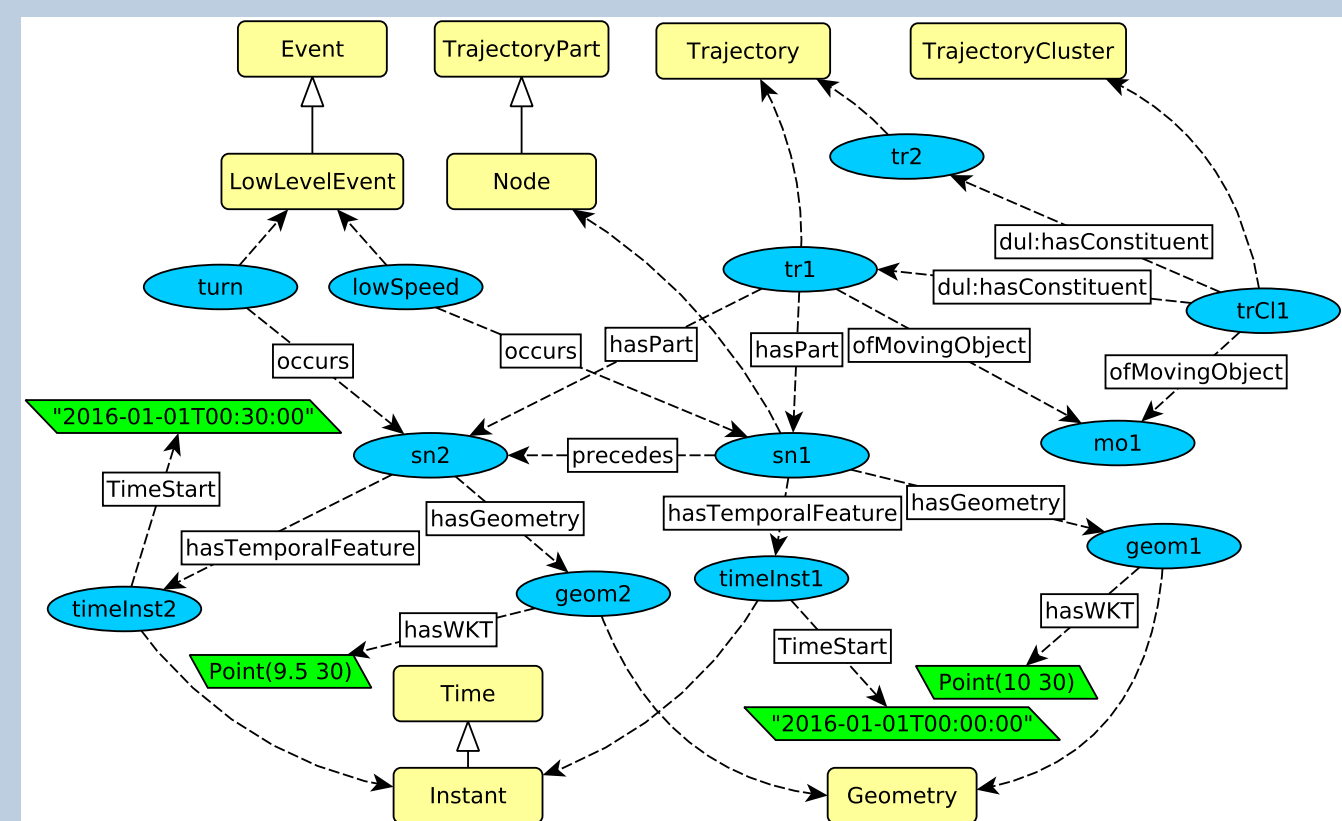
Structured Trajectory Pattern



Linked Trajectory Pattern



Node Example



On-line Source

Online documentation of the ontology available at
http://ai-group.ds.unipi.gr/datacron_ontology/



Problem Definition

We aim to support effective detection and forecasting of moving entities' trajectories, as well as recognition and prediction of important events by exploiting big data from disparate and heterogeneous data sources.

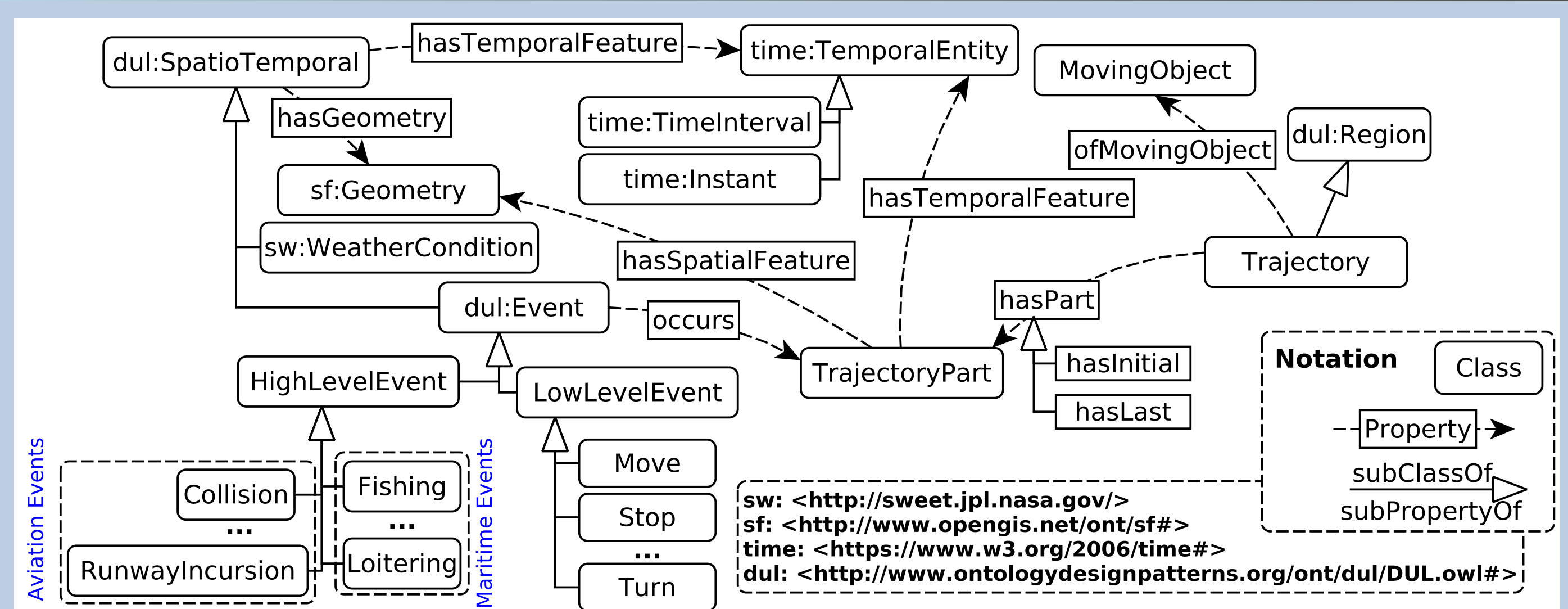
Revolving around the notion of trajectory, we revisit the notion of semantic trajectory and build on it. The main contribution of the proposed ontology is the representation of semantic trajectories at different levels of spatio-temporal analysis:

Trajectories may be seen as:

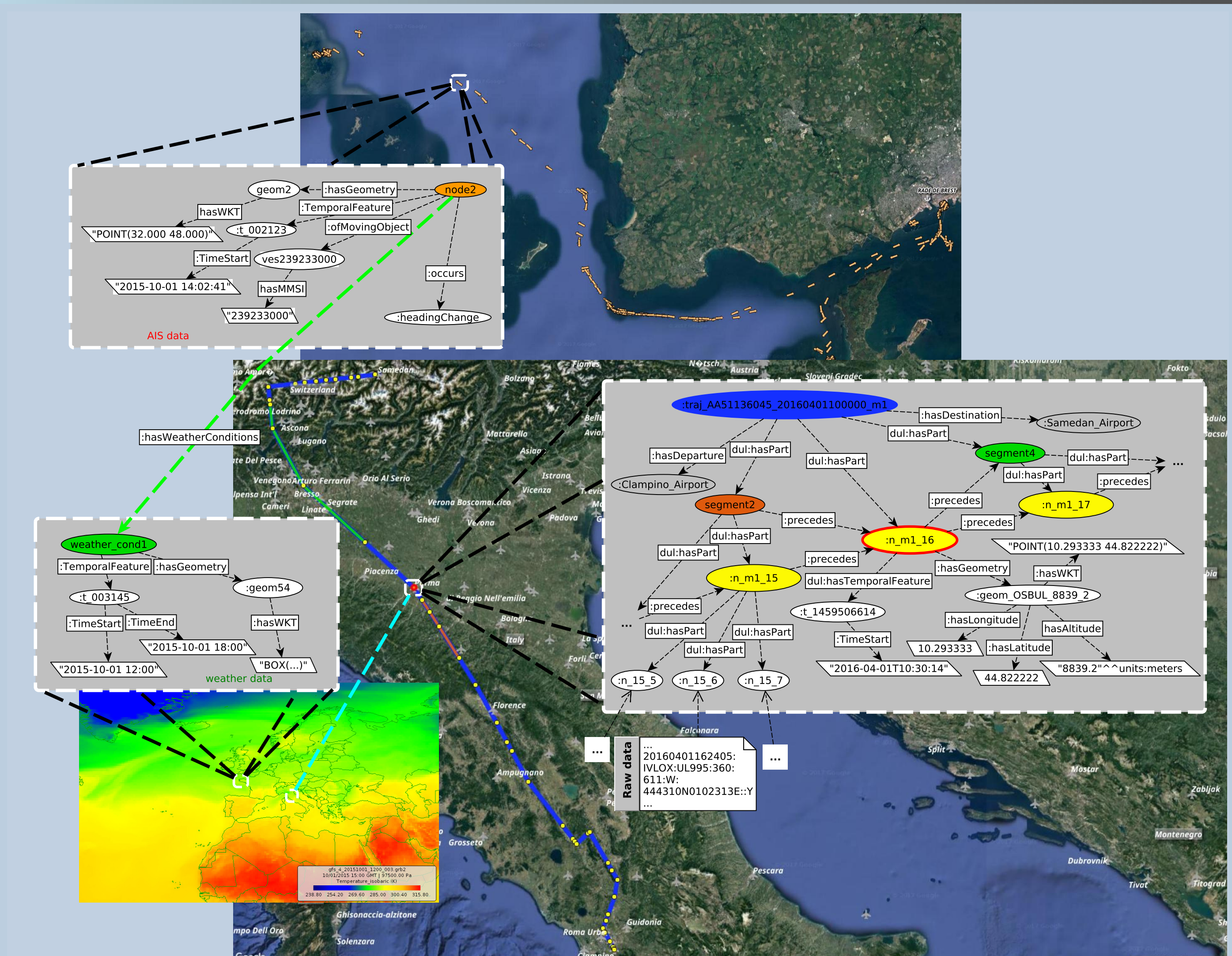
- temporal sequences of moving objects' positions derived from raw data,
- mere geometries,
- temporal sequences of raw data aggregations signifying meaningful events (generalizing on the stops and moves model),
- providing a synoptic view of raw trajectories,
- and as temporal sequences of non-overlapping meaningful trajectories segments (each revealing specific behaviour, event, goal, activity etc)

Representations at any level of analysis should be linked to each other, as well as to contextual information and co-occurring events.

Ontology Core



Structured Trajectories in Real Data



Acknowledgements



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