



## **The IHMC CmapTools software in research and education: a multi-level use case in Space Meteorology**

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The IHMC (Institute for Human and Machine Cognition, Florida University System, USA) CmapTools software is a powerful multi-platform tool for knowledge modelling in graphical form based on concept maps.

In this work we present its application for the high-level development of a set of multi-level concept maps in the framework of Space Meteorology to act as the kernel of a space meteorology domain ontology.

This is an example of a research use case, as a domain ontology coded in machine-readable form via e.g. OWL (Web Ontology Language) is suitable to be an active layer of any knowledge management system embedded in a Virtual Observatory (VO).

Apart from being manageable at machine level, concept maps developed via CmapTools are intrinsically human-readable and can embed hyperlinks and objects of many kinds.

Therefore they are suitable to be published on the web: the coded knowledge can be exploited for educational purposes by the students and the public, as the level of information can be naturally organized among linked concept maps in progressively increasing complexity levels.

Hence CmapTools and its advanced version COE (Concept-map Ontology Editor) represent effective and user-friendly software tools for high-level knowledge representation in research and education.