The number of publications per year to carbon capture and sequestration (CCS) increases exponentially due to global efforts to reduce industrial carbon emissions into the atmosphere. A controlled vocabulary (CCS Ontology) will be presented that has been designed in order to keep track of the information overload and to provide efficient support for literature search by automatically sorting textual content semantically. The utilization of an ontology within a semantic search system is being presented. The ontology thereby has its main focus on geo-scientific concepts. Users of such an ontology-based search system benefit from a clearly improved and meaningful structured overview of search results. Simultaneously, the hit rate on many concepts increases because an ontology ‘knows’ synonyms: Documents containing term-of-interest synonyms become listed alike – even if the user does not explicitly search for synonym terms or does not even know the synonym terms actually exist. Hence the ontology may offer users significant improvements in efficiency and completeness of their work with respect to the growing field of CCS. The non-trivial task of disambiguation, i.e. distinguishing between several terms with the same name but different meanings (homonyms), and the utilisation of the ontology to link to matching database content are discussed.