



Groundwater



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Manuscript #	GW20210102-0001
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<u>Current Stage</u>	Waiting for Revision
Title	Contamination Assessment and Site-management Tool (CAST) - A browser-based tool for site assessment
Manuscript Type	Methods Note
Special Section	N/A
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Abstract	<p>Groundwater dependency is increasing globally, while millions of potentially contaminated sites are yet to be characterized for contamination levels. In particular, groundwater contamination due to LNAPLs continues to be a global challenge. Mathematical approaches (i.e., analytical, semi-analytical, empirical, numerical) are preferred for an initial site assessment to circumvent the high characterization costs and limited site-data availability. However, the site-specific nature of contamination restricts the generalization of any single approach. Hence, the requirement is for an easy-to-use computing interface that provides site-specific data management, the selection and use of multiple-model interfaces for computing and site characterization, and extension for the latest models as they become available. This work provides one such interface called CAST or Contamination Assessment and Site-management Tool. CAST is an open-source browser-based (online/offline) tool that provides an interface for six different analytical models (e.g., BIOSCREEN-AT), a MODFLOW based numerical model, and two empirical models (including a hybrid numerical-analytical model).</p> <p>Additionally, CAST includes interfaces for site data management, their evaluation, and scenario-based modeling. CAST's development is in a modular format, which simplifies the addition of new computing or data interfaces. Furthermore, the entire code-base of CAST is based on open-source (dominantly Python-programming) libraries and standards. This further simplifies the modification or extension of this tool. This paper introduces CAST, its different computing and data management interfaces,</p>

	and provides examples of the tool's functionality primarily for the initial evaluation of contaminated sites.
Article Impact Statement	Open-source, browser-based LNAPL contaminated site assessment tool with data handling; scope for extension using Python- programming
Executive Editor	Assigned
Key Words	Browser-based modeling, contamination (NAPL) site management, Python-based groundwater assessment tool, reactive transport modeling

Manuscript Items

1. Author Cover Letter [PDF \(322KB\)](#)
2. Article File [PDF \(1005KB\)](#)
3. CAST interface toolbox screenshots - Provides screenshots for the various toolboxes in the CAST interface. [PDF \(826KB\)](#)

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