

Geospatial meteorological and climatic data services application programming interface (API)

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Introduction

- Bringing software to the Earth science data is becoming increasingly necessary
- Modern information-computational infrastructure is based on SDI concepts and standards
 - geospatial data, metadata, geospatial web services
- Web service development approaches
 - SOAP (Simple Object Access Protocol)
 - REST (Representational State Transfer)
- WPS (Web Processing Service) is an OGC standard for distributed geospatial data processing services. The advantages:
 - Output data of one process can be input data of another one, presenting data analysis task as a workflow
 - Processes could be designed independently
- The main goal of the work is to present the approach that provides unified access to web processing services (WPS) developed for climate and meteorological research using “Climate” platform

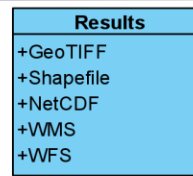
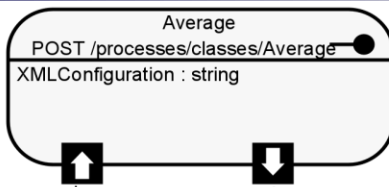
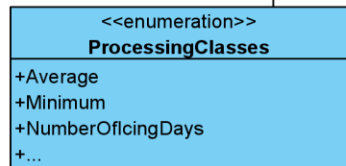
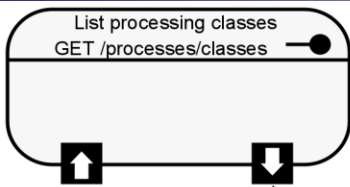
Methodology

- A Web API is an application programming interface for a web server (server side) or a web browser (client side).
- To apply Web API approach to RESTful web services, an OpenAPI (<http://spec.openapis.org/oas/v3.0.3>) is used
- OGC API standards (<https://ogcapi.org/>) based on OGC Web Service standards (WMS, WFS, WPS)
- The "OGC API - Processes" standard draft was created based on the WPS 2.0 specification, conforms to OpenAPI

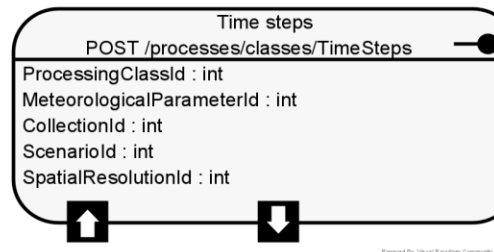
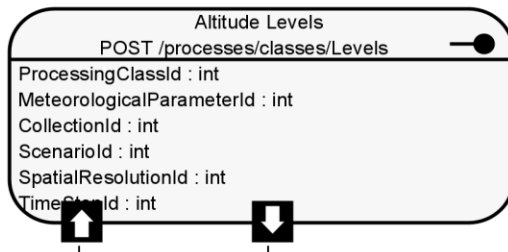
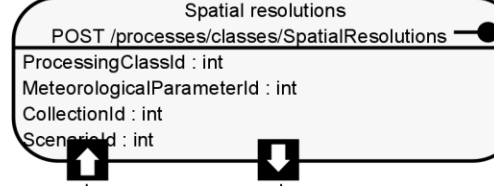
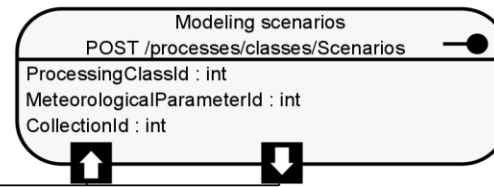
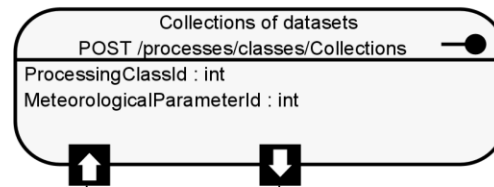
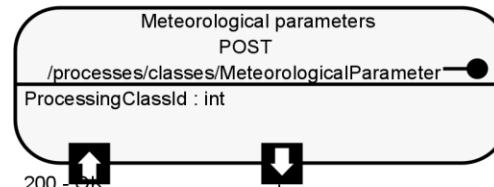
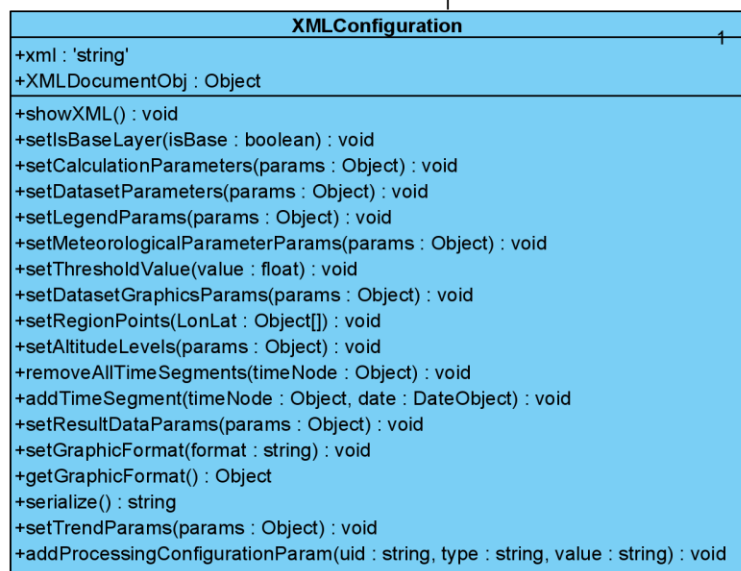
OGC API HTTP request	Description	WPS Request
GET /processes	Lists the processes this API offers	<u>GetCapabilities</u>
GET /processes/{process-id}	Returns a detailed description of a process	<u>DescribeProcess</u>
POST /processes/{process-id}/jobs	Executes a process, i.e. creates a new job. Inputs and outputs will have to be specified in a JSON document that needs to be send in the POST body.	Execute

Climate Web API

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Conclusion

- The Climate Web API presented provides software basis for advanced development and usage of “Climate” platform web processing services aiming at climate change studies at regional and global levels.
- The correct implementation of the proposed specification will form a solid foundation for further development of desktop client applications in the form of GIS plugins, as well as universal web-GIS clients easily embedded into thematic virtual research environments.

***Thank you for your
attention***