CDAS WPS Request Specification
version 1.0

1.Request Specification:

A request to the CDAS analysis service is of the form:

> *http://host:port/cdas?arg1=value1&arg2=value2&arg3=value3…*

Here is a list of the supported arguments and their meanings:

service	"WPS"	Denotes the WPS service
version	"1.0.0"	Specifies the WPS version
request	"Execute"	Specifies a WPS 'Execute' request.
identifier	"cdas"	Executes the "cdas" process in WPS.
embedded	true/false	If embedded=true then return the result json-embedded in the request response, otherwise embed a URL to access the result via a separate request.
datainputs	json	Input arguments to the cdas process (see below).

2. Datainputs Specification:

2.1 Format:
The *datainputs* value consists of a list of *'arg=value'* specifications, e.g.: *[arg1=value1, arg2=value2, …].* There are currently three supported arguments: *data, region*, and *operation*.

2.2 Data input:
The data input argument value is of the form *{ collection_id: [var1, var2, var3] },* for example:

> *data={ "MERRA/mon/atmos": ["v0:hur", "v1:sst""", "v2:clt"] }*

The *collection_id* is associated (internally) with the location (OpenDAP or local file system) of a dataset.   The variable specifications refers to variables in the dataset and are of the form "*varId:varName*", where *varId* is a unique id used to reference the variable, and *varName* is the id of the variable in the dataset.

2.3 Region input:
The region input argument value is of the form { *axis1:slice1, axis2:slice2, …* }; here are some examples:

> *region={ "longitude":[-104.7,-50.6],"latitude":[21.3,44.7],"level":100000 }*
> *region={ "longitude":50.2,"latitude":21.3,"time":"2010-01-16T12:00:00"}*

The slice value can be either a single value or a range of values represented as a two-member list of the form:*[start_value, end_value*]. The axis names can be shortened to three letters, for example:

region={ "lon":-104.,"lat":21.3,"lev":100000,"tim":"2010-01-16T12:00:00"}

2.4 Operation Input:

The operation input argument value is a list of function invocations. Each function invocation is of the form *"kernel1.function1(arg1,arg2,…)".* Here is an example:

operation=["cdtime.departures(v0, slice:t)",
*   "cdtime.climatology(v0, slice:t, bounds:annualcycle)",*
*   "cdtime.value(v0)"*
*   ]*

The kernel value specifies a package of server-side analysis functions, the function value specifies which function within that package is being invoked.   The function arguments are either *var_id*s (as defined in section 2.2) or keyword arguments of the form *key:value*. Function invocation results can be given a varId and then used as inputs to other functions, for example:

operation=["va: cdtime.average(v0, slice:t)",
*   "cdtime.difference(v0, va, slice:t)",*
*   ]*

The operation returns a list of the function invocation results (which in "embedded" mode is json encoded and embedded in the request response).   Function invocations that are assigned varIds are considered internal and (by default) not included in the returned invocation results list.