



## PROJET RESERVAQUA

### NOTE TECHNIQUE (RES-01)

#### ANNEXE 1 – ELABORATION DES JEUX DE DONNEES THEMATIQUES – MODELE MINIMAL DE GEODONNÉES (MMGD)

#### **Weather and Climate**

##### Rainfall\_stations (spatial type: point)

Field	Description	Type	Domain	NULL_Value
RAINFALL_STATION_ID	Usual station identifier within the network	Text		N
RAINFALL_STATION_NAME	Rainfall station's name	Text		Y
NETWORK_NAME	Network's name of the station	Text		N
STATION_MANAGER	Organisation in charge of managing the station	Text		N
MEASUREMENT_TYPE	Type of measurement and indication of data transmission	Numeric	1 automatic 2 automatic with data transmission 3 manual 99 undetermined	N
IN_USE_DATE	Date in years (YYYY) when the monitoring station has been installed (No data = -9999)	Numeric		N
ALTITUDE	Altitude in meter above mean sea level	Numeric		Y
LEVELLING_METHOD	Method of levelling altitude	Numeric	1 field survey (GPS or theodolite) 2 derived from DEM (GIS) 99 undetermined	N
DATA_SOURCE	Source of data	Text		N

**Temperature\_stations (spatial type: point)**

Field	Description	Type	Domain	NULL_Val ue
TEMPERATURE_STATION_ID	Usual station identifier within the network	Text		N
TEMPERATURE_STATION_NAME	Temperature station's name	Text		Y
NETWORK_NAME	Network's name of the station	Text		N
STATION_MANAGER	Organisation in charge of managing the station	Text		N
MEASUREMENT_TYPE	Type of measurement and indication of data transmission	Numeric	1 automatic 2 automatic with data transmission 3 manual 99 undetermined	N
IN_USE_DATE	Date in years (YYYY) when the monitoring station has been installed (No data = -9999)	Numeric		N
ALTITUDE	Altitude in meter above mean sea level	Numeric		Y
LEVELLING_METHOD	Method of levelling altitude	Numeric	1 field survey (GPS or theodolite) 2 derived from DEM (GIS) 99 undetermined	N
DATA_SOURCE	Source of data	Text		N

**Snow\_stations (spatial type: point)**

Field	Description	Type	Domain	NULL_ Value
SNOW_STATION_ID	Usual station identifier within the network	Text		N
SNOW_STATION_NAME	Snow station's name	Text		Y
NETWORK_NAME	Network's name of the station	Text		N
STATION_MANAGER	Organisation in charge of managing the station	Text		N
MEASUREMENT_TYPE	Type of measurement and indication of data transmission	Numeric	1 automatic 2 automatic with data transmission 3 manual 99 undetermined	N
IN_USE_DATE	Date in years (YYYY) when the monitoring station has been installed (No data = -9999)	Numeric		N
ALTITUDE	Altitude in meter above mean sea level	Numeric		Y
LEVELLING_METHOD	Method of levelling altitude	Numeric	1 field survey (GPS or theodolite) 2 derived from DEM (GIS) 99 undetermined	N
DATA_SOURCE	Source of data	Text		N

**Surface Water****Stream\_network (spatial type: polyline)**

Field	Description	Type	Domain	NULL_Value
FLOW_TYPE	Type of stream flow	Numeric	1 permanent 2 temporary 99 undetermined	N
NETWORK_TYPE	Type of water network	Numeric	1 river/stream/brook 2 canal 3 irrigation canal 4 bisse 99 undetermined	N
DATA_SOURCE	Source of data	Text		N

**River\_gauging\_stations (spatial type: point)**

Field	Description	Type	Domain	NULL_V alue
RIVER_GAUGING_STATION_ID	Unique identifier of the station	Text		N
RIVER_GAUGING_STATION_NAME	River gauging station's name	Text		Y
NETWORK_NAME	Network's name of the station	Text		N
STATION_MANAGER	Organisation in charge of managing the station	Text		N
MEASUREMENT_TYPE	Type of measurement and indication of data transmission	Numeric	1 automatic 2 automatic with data transmission 3 manual 99 undetermined	N
IN_USE_DATE	Date in years (YYYY) when the monitoring station has been installed (No data = -9999)	Numeric		N
ALTITUDE	Altitude in meter above mean sea level	Numeric		Y
LEVELLING_METHOD	Method of levelling altitude	Numeric	1 field survey (GPS or theodolite) 2 derived from DEM (GIS) 99 undetermined	Y
DATA_SOURCE	Source of data	Text		N

**River\_water\_sampling\_point (spatial type: point)**

Field	Description	Type	Domain	NULL_V alue
RIVER_WATER_SAMPLING_POINT_ID	Unique identifier of the point	Text		N
RIVER_WATER_SAMPLING_POINT_NAME	River station's name	Text		Y
NETWORK_NAME	Network's name of the station	Text		N
STATION_MANAGER	Organisation in charge of managing the station	Text		N
IN_USE_DATE	Date in years (YYYY) when the monitoring station has been installed (No data = -9999)	Numeric		N
ALTITUDE	Altitude in meter above mean sea level	Numeric		Y
LEVELLING_METHOD	Method of levelling altitude	Numeric	1 field survey (GPS or theodolite) 2 derived from DEM (GIS) 99 undetermined	N
DATA_SOURCE	Source of data	Text		N

**River\_catchment (spatial type: polygon)**

Field	Description	Type	Domain	NULL_Value
CATCHMENT_ID	Unique identifier of the river catchment. The average area should be comprised in between 10 and 100 km <sup>2</sup> with an average of 40 km <sup>2</sup> .	Text		N
ICE_COVERAGE	Proportion of glacier as percentage of total catchment area (No data = -9999)	Numeric		N
CATCHMENT_NAME	Name of the river catchment	Text		N
DATA_SOURCE	Source of data	Text		N

**Water\_body (spatial type: polygon)**

Field	Description	Type	Domain	NULL_Value
WATER_BODY_TYPE	Type of the water body	Numeric	1 natural 2 artificial 99 undetermined	N
DATA_SOURCE	Source of data	Text		N

**Glacier\_area (spatial type: multipart polygon)**

Field	Description	Type	Domain	NULL_Value
SURVEY_DATE	Date in years (YYYY) when the survey has been done (No data = -9999)	Numeric		N
GLACIER_TYPE	Type of glacier	Numeric	1 glacier 2 rock glacier 99 undetermined	N
DATA_SOURCE	Source of data	Text		N

**Permafrost\_area (spatial type: multipart polygon)**

Field	Description	Type	Domain	NULL_Value
SURVEY_DATE	Date in years (YYYY) when the survey has been done (No data = -9999)	Numeric		N
DATA_SOURCE	Source of data	Text		N

**Groundwater****Groundwater\_points (spatial type: point)**

Field	Description	Type	Domain	NULL_ Value
GROUNDWATER_POINT_ID	Unique identifier of the groundwater point	Text		N
GROUNDWATER_POINT_NAME	Name of the groundwater point	Text		Y
OBJECT_TYPE	Type of the groundwater observation point	Numeric	1 spring 2 well 3 piezometer	N
NETWORK_NAME	Network's name of the station	Text		N
STATION_MANAGER	Organisation in charge of managing the station	Text		N
OBSERVATION_TYPE	Type of the current observation	Numeric	1 qualitative 2 quantitative 3 qualitative and quantitative 4 not applicable 99 undetermined	N
AQUIFER_TYPE	Type of aquifer in relation with the groundwater point	Numeric	1 porous 2 karstic 3 fractured 4 mixt (porous-fractured) 99 undetermined	N
FLOW_REGIME	Flow regime (relevant only for springs. Not applicable for other object types)	Numeric	1 permanent 2 temporary 3 intermittent 4 periodic 5 not applicable 99 undetermined	N
MIN_DISCHARGE_RATE	Minimal average flow in liter per minute	Numeric		Y
MAX_DISCHARGE_RATE	Maximal average flow in liter per minute	Numeric		Y
ALTITUDE	Altitude in meter above mean sea level	Numeric		Y
LEVELLING_METHOD	Method of levelling altitude	Numeric	1 field survey (GPS or theodolite) 2 derived from DEM (GIS) 99 undetermined	Y

DATA_SOURCE	Source of data	Text		N
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**Groundwater abstraction points (spatial type: point)**

Field	Description	Type	Domain	NULL_ Value
GW_ABSTRACTION_POINT_ID	Unique identifier of the groundwater abstraction point	Text		N
GW_ABSTRACTION_POINT_NAME	Name of the groundwater abstraction point	Text		Y
OBJECT_TYPE	Type of the groundwater abstraction point	Numeric	1 spring 2 well	N
FLOW_REGIME	Flow regime (relevant only for springs. Not applicable for other object types)	Numeric	1 permanent 2 temporary 3 not applicable 99 undetermined	N
PUBLIC_UTILITY	Public utility of groundwater (is the groundwater abstraction point dedicated to public needs?)	Numeric	1 yes 2 no 99 undetermined	N
CURRENT_USE	Current use of groundwater abstraction point	Numeric	1 drinking water supply 2 agriculture water supply 3 industrial water supply 4 bottling water supply 5 thermalism/wellness 6 hydropower 7 no use 8 multiple use 99 undetermined	N
OWNER_TYPE	Type of owner	Numeric	1 private 2 municipality 3 region 4 province 5 canton 99 undetermined	N
ALTITUDE	Altitude in meter above mean sea level	Numeric		Y
LEVELLING_METHOD	Method of levelling altitude	Numeric	1 field survey (GPS or theodolite) 2 derived from DEM (GIS) 99 undetermined	N
DATA_SOURCE	Source of data	Text		N

**Water\_protection\_regions (spatial type: multipart polygon)**

Field	Description	Type	Domain	NULL_Value
WATER_PROTECTION_REGIONS	Water protection regions are an instrument for the planned protection of groundwater and surface waters in terms of both quantity and quality. The aim is to delineate areas with usable water reserves and the peripheral areas required for their protection. In Switzerland, three types of groundwater protection regions are considered based on geology: 1) Au porous media 2) Au karstified rocks 3) Au fissured and non-karstified rocks. The water protection Ao aims to protect surface water which could influence the exploitation of groundwater (including glaciers).	Numeric	<b>1</b> Au porous media (CH) <b>2</b> Au karstified rocks (CH) <b>3</b> Au fractured and non-karstified rocks (CH) <b>4</b> Ao (CH) <b>5</b> Italian equivalent of the Swiss Au porous media (IT) <b>6</b> Italian equivalent of the Swiss Au karstified media (IT) <b>7</b> Italian equivalent of the Swiss Au fractured and non-karstified media (IT) <b>8</b> Italian equivalent of the Swiss Ao (IT) <b>99</b> others	N
DATA_SOURCE	Source of data	Text		N

**Groundwater\_protection\_zones\_and\_perimeters (spatial type: multipart polygon)**

Field	Description	Type	Domain	NULL_Value
GW_PROTECTION_ZONES_PERIMETERS	Groundwater protection zones are intended to protect drinking water sources and the groundwater, immediately before its use as drinking water, from damaging effects. In Switzerland the following delimitations exist: 1) S - Groundwater protection zone dedicated to protecting wellhead 2) P - Groundwater protection perimeter dedicated to protecting other potential groundwater abstraction point. In Italy 3) Zone di protezione (IT) 4) Italian equivalent of the Swiss PP	Numeric	1 S (CH) 2 P (CH) 3 Zone di protezione (IT) 4 Italian equivalent of the Swiss PP (IT) 99 others	N
DATA_SOURCE	Source of data	Text		N

**Piezometric\_contours\_levels (spatial type: polyline)**

Field	Description	Type	Domain	NULL_Value
PIEZO_CONTOUR_ID	Unique identifier of the piezometric contours level	Text		N
SURVEY_DATE	Date in years-month-day (YYYY-MM-DD)	Text		N
PIEZO_CONTOUR_VALUE	Value of the water table elevation in meter above mean sea level	Numeric		N
DATA_SOURCE	Source of data	Text		N

**Groundwater\_bodies (spatial type: polygone)**

Field	Description	Type	Domain	NULL_Value
GWB_ID	Unique identifier of the groundwater body	Text		N
GWB_NAME	Name of the groundwater body	Text		N
SURVEY_DATE	Date in years (YYYY) when the survey has been done (No data = -9999)	Numeric		N
DATA_SOURCE	Source of data	Text		N

**Agriculture**

**Pasture (spatial type: multipart polygon)**

Field	Description	Type	Domain	NULL_Value
PASTURE_ID	Unique identifier of the pasture	Text		N
PASTURE_NAME	Name of the pasture	Text		N
DRINKING_WATER_QUANTITY	Capacity of the existing drinking water supply system to cover the needs of the alpine pasture during the entire summer period	Numeric	1 overabundant (considerable unconsumed volume has flowed through the overflows) 2 sufficient 3 lacking (there were shortages of water) 99 undetermined	N
WATERING_WATER_QUANTITY	Ability of existing watering supply to meet livestock needs throughout the summer period	Numeric	1 overabundant (considerable unconsumed volume flowed through overflows) 2 sufficient 3 lacking (there were water shortages) 99 undetermined	N
CLEANING_WATER_QUANTITY	Capacity of the existing raw cleaning water supply network to cover the cleaning needs of stables, milking places, etc. during the summer period	Numeric	1 overabundant (considerable unconsumed volume has flowed through the overflows) 2 sufficient 3 lacking (there were shortages of water) 99 undetermined	N
IRRIGATION_WATER_QUANTITY	Capacity of the existing irrigation water supply network to cover the irrigation needs of pastures during the summer period	Numeric	1 overabundant (considerable unconsumed volume has flowed through the overflows) 2 sufficient 3 lacking (there were shortages of water) 99 undetermined	N

FODDER_QUANTITY	Capacity of the forage produced by the pastures of the alpine pasture to cover the feed needs of the livestock during the summer period	Numeric	1 overabundant (there was too much fodder) 2 sufficient 3 lacking (there was a shortage of fodder) 99 undetermined	N
SURVEY_DATE	Date (DD.MM.YYYY) when the survey has been done (No data = -9999)	Text		N
DATA_SOURCE	Source of data	Text		N

### Territory

#### Administrative\_division (spatial type: multipart polygon)

Field	Description	Type	Domain	NULL_Value
ADMINISTRATIVE_DIVISION_ID	Unique identifier of the administrative division	Text		N
ADMINISTRATIVE_DIVISION_LEVEL	Level of administrative division	Numeric	1 regional 2 provincial 3 cantonal 4 district 5 municipal	N
DIVISION_NAME	Name of the administrative division	Text		N
DIVISION_POPULATION	Population of the administrative division	Numeric		N
SURVEY_DATE	Date in years (YYYY) when the survey has been done (No data = -9999)	Numeric		N
DATA_SOURCE	Source of data	Text		N

#### Land\_use (spatial type: polygon)

Field	Description	Type	Domain	NULL_Value
LAND_USE_ID	Unique identifier of the land use polygon	Text		N
LAND_USE_TYPE	Type of land use	Text		N
DATA_SOURCE	Source of data	Text		N

**Underground\_infrastructures (spatial type: polyline)**

Field	Description	Type	Domain	NULL_Value
UNDER_INFRASTRUCT_ID	Unique identifier of the underground infrastructure	Text		N
UNDER_INFRASTRUCT_NAME	Name of the underground infrastructure	Text		Y
UNDER_INFRASTRUCT_TYPE	Type of underground infrastructure	Numeric	1 tunnel 2 gallery 3 pipe 99 undetermined	N
DATA_SOURCE	Source of data	Text		N