# Geophysical data and metadata and INSPIRE

**L. Kondrová[1], R. Kujal[1], J. Faugnerová[2]**
[1]Czech Geological Survey, Division of Informatics
[2]Czech Environmental Information Agency

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# Presentation outline


- INSPIRE – what is it?
- How to provide metadata and data for INSPIRE, Czech National INSPIRE Geoportal
- Geophysics in INSPIRE
  - Structure
  - Content
  - Format

# INSPIRE – what is it?

- **In**frastructure for **Sp**atial **I**nfor**m**ation in the **E**uropean Community – a directive about data that can have an impact on the environment
- transposed in the Czech law (Act 123/1998 on Access to Information on the Environment)
  - **http://inspire.ec.europa.eu/**
  - **http://inspire.gov.cz** → → →
    (information in Czech, administered by the Czech national coordinator for INSPIRE, i.e. Czech Environmental Information Agency - CENIA)

# INSPIRE – what is it about?

- it's about **providing access** to spatial data that can have an impact on the environment
- LMO = legally mandated organizations have to provide:
  - **metadata** (structured descriptions of data sources, NOT technical metadata)
  - **spatial data sets harmonized to a defined common data model** – until 10/2020
  - **spatial data services**
    - discovery, view, download
- LMOs provide data to the National INSPIRE Geoportal → automated harvesting to the European INSPIRE Geoportal

# Czech National INSPIRE Geoportal

Guarantee geoportal availability, helpdesk services and content validation.

Helpdesk, administrators

cenia

272 records

European Union


Data providers

Provide access to data and services through metadata, can create map compositions from own services to be displayed on geoportal.
**ONLY WITH EXTENDED RIGHTS**


**https://geoportal.gov.cz/**

Only sources from coordinators of the INSPIRE national data sets are harvested to the EU INSPIRE geoportal.

Users in the CR

cca 2370 records

Have access to the complete content of the geoportal (as it is provided by the Czech data providers) – can also include data that are not relevant for INSPIRE.

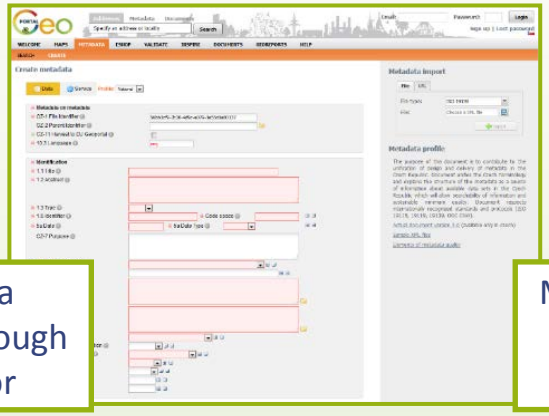
# Metadata – public access

National INSPIRE geoportal – metadata **Editor**

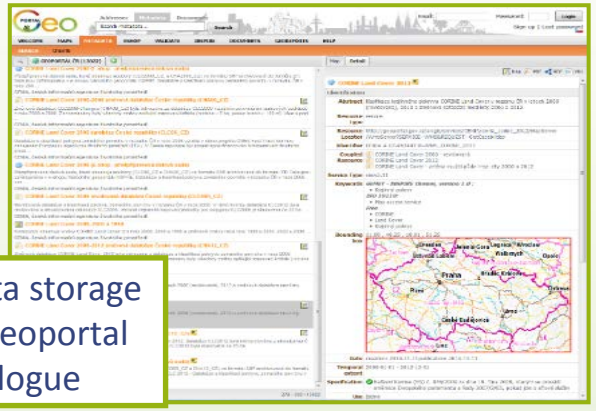
National INSPIRE geoportal – metadata **Catalogue**

Data providers

Metadata creation through the editor



Metadata storage in the geoportal catalogue

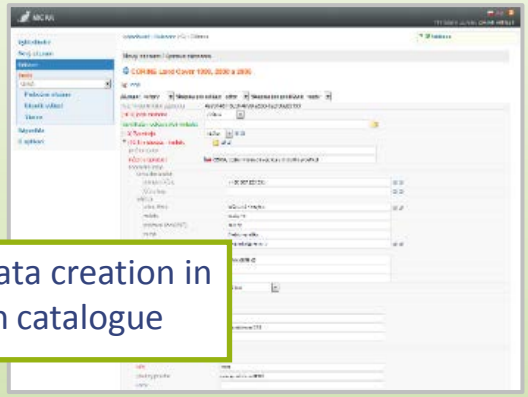


Provider's catalogue

CSW (discovery service)

Data providers

Metadata creation in own catalogue



Harvesting

# Data relevant for INSPIRE

- 34 themes divided in three annexes
- On national level - each theme has its coordinator (a Ministry or other public body), who identifies relevant data available in the Czech Republic and then provides the metadata, data and services according to INSPIRE requirements (or commission other institution to do so)
- Annex II, theme **Geology** >> subtheme **Geophysics**
  - core data model (mandatory)
  - extension (optional)
  - CGS – responsible for the theme Geology (commissioned by the MoE)

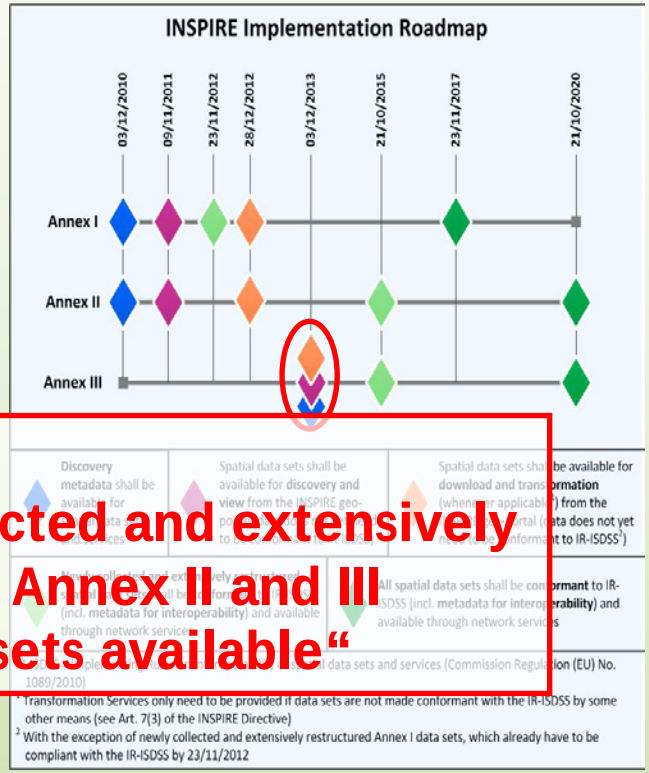
# INSPIRE – GF data identified by the Regulation 1089

**Geophysical Station**
- Gravity Station (observatory, 1st, 2nd order base stations)
- Magnetic Station (observatory, 1st, 2nd order base stations)
- Seismological Station (observatory, 1st, 2nd order base stations)
- Magnetotelluric Soundings (MT)
- Vertical Electric Soundings (VES)

**Geophysical Profile**
- Seismic Line
- Borehole logging
- Multielectrode DC Profile

**Geophysical Swath**
- 3D Seismics

**Campaign**
- Airborne geophysical survey
- Ground gravity survey
- Ground magnetic survey
- 3D resistivity survey
- Seismological survey




**21/10/2015**
**„Newly collected and extensively restructured Annex II and III spatial data sets available“**

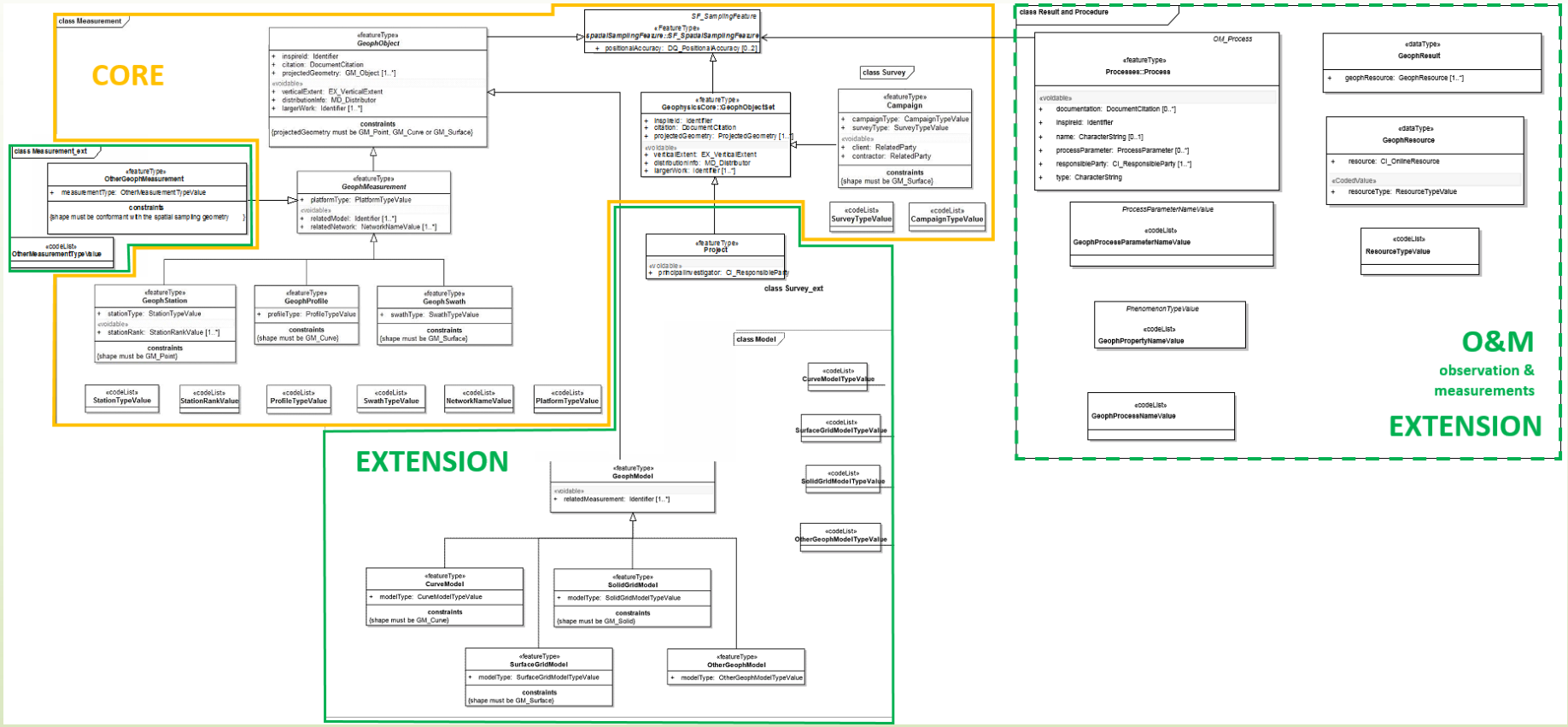
In László Sőrés, 2017

# INSPIRE Data requirements

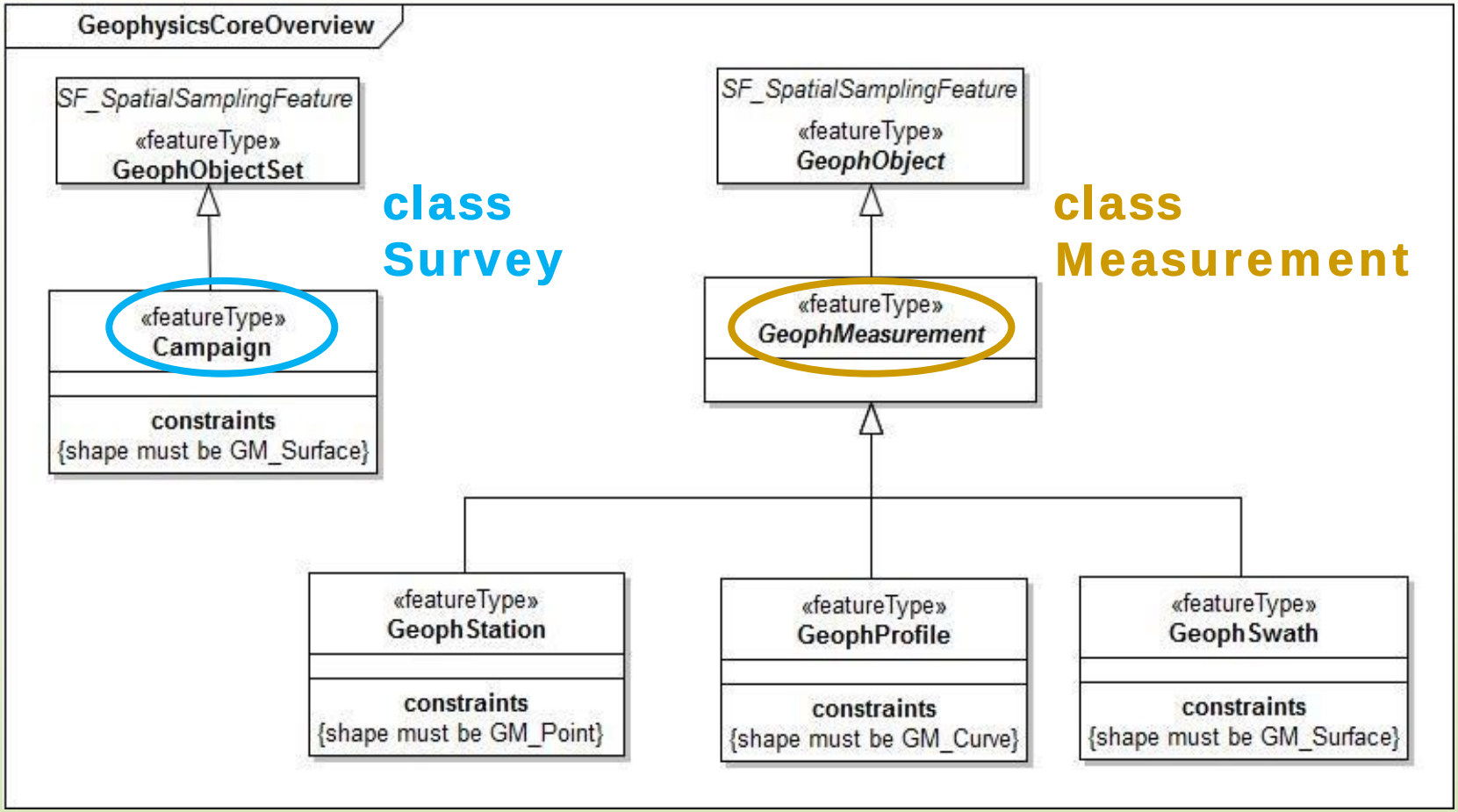
- Spatial **GIS data**
  - geometries with attributes
  - definitions and data structure are defined in „data specifications“
- Measured geophysical data is **not required** by INSPIRE, only location and descriptive data
- **classes** (base data objects) – each class has its main **FeatureType** (geometric representation - GIS)

| | class (data object) | main FeatureType |
|---|---|---|
| **CORE mandatory** | Measurement | **GeophMeasurement** |
| | Survey | **Campaign** |
| EXTENSION optional | Measurement_ext | OtherGeophMeasurement |
| | Survey_ext | Project |
| | Model | GeophModel |
| | Result and Procedure | Process |

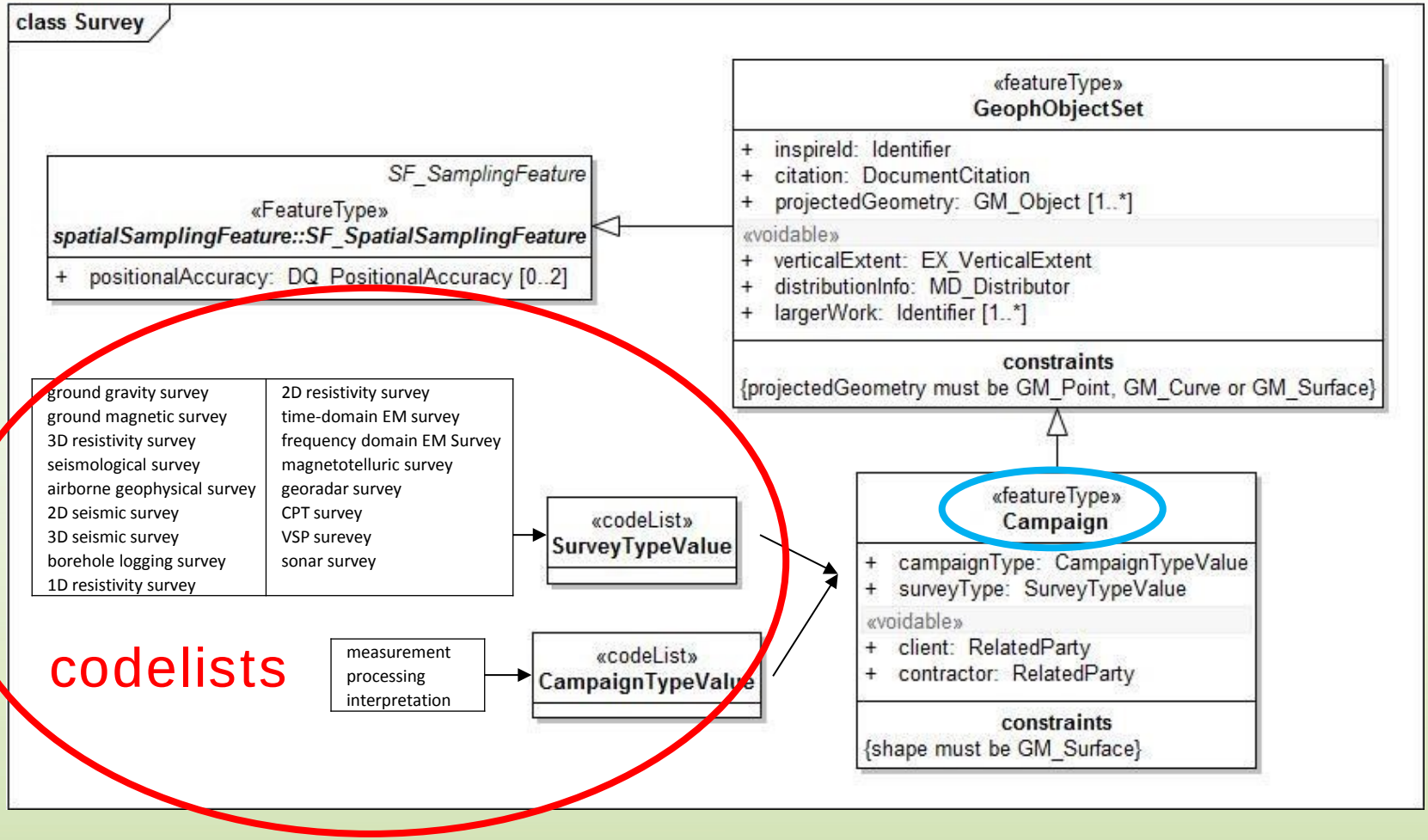
# Overview of the Geophysics object model



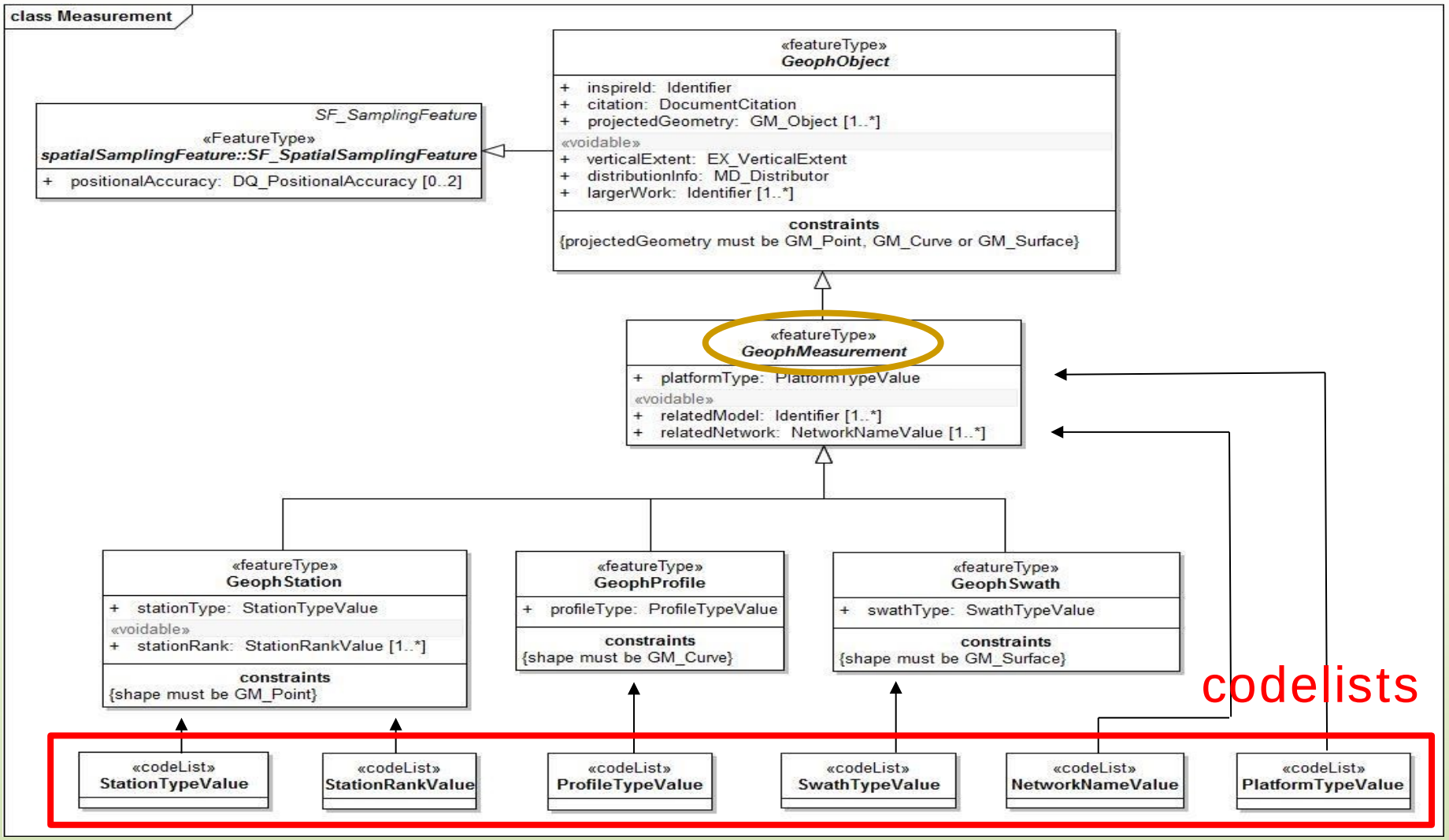
# Overview of the Core model (mandatory)



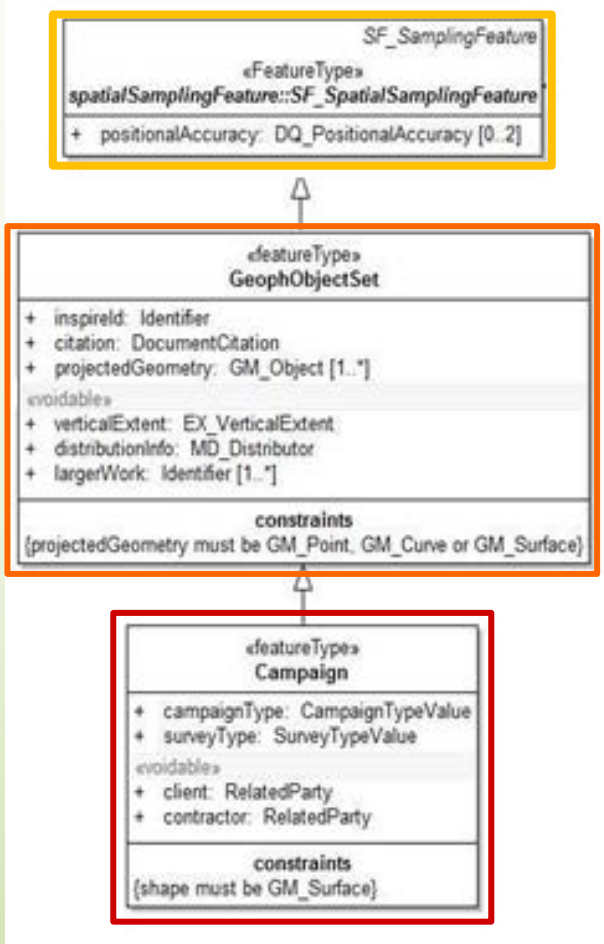
# class Survey, featureType Campaign



# class Measurement, fType GeophMeasurement



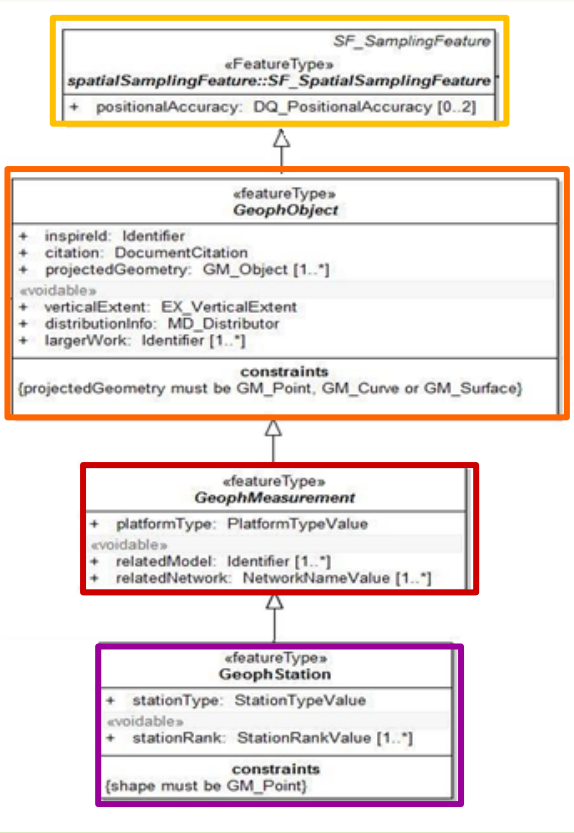
# **Campaign** – example: ground gravity survey




**Campaign** (main featureType of the class Survey)

| | XML ground gravity survey CMP_GRAV_kisa071 | | |
|---|---|---|---|
| Objects | Attributes | | Values |
| SF_Spatial SamplingFeature | **sampledFeature** | | earth |
| GeophObjectSet | **identifier** | | CMP_GRAV_kisa071 |
| | **citation** | name | kisa071 Gravity Measurement Campaign |
| | **projectedGeometry** | | urn:uuid:GM_CMP_GRAV_kisa071 |
| | **distributionInfo** | href | urn:uuid:CP_kiss.janos_mfgi.hu |
| | | name | Kiss János |
| **Campaign** | **campaignType** | | measurementCampaign |
| | **surveyType** | | groundGravitySurvey |
| | **client** | name | Magyar állam |
| | | url | http://geomind.elgi.hu/skos/Organisation/HungarianState |
| | **contractor** | value | MFGI |
| | | codeSpace | http://geomind.elgi.hu/skos/Organisation/MFGI |
| | **shape** | geometry | POLYGON((564430 226723,564430 298929,478344 298929,478344 226723,564430 226723)) |
| | | srsName | EPSG:23700 |

# GeophMeasurement – example: gravity station




**GeophMeasurement** (main featureType of the class Measurements)

| | XML gravity station GRAV_BASE_4500 | | |
|---|---|---|---|
| Objects | Attributes | | Values |
| SF_Spatial SamplingFeature | **sampledFeature** | | http://sweet.jpl.nasa.gov/2.1/realmEarthReferenc e.owl#EarthLithosphere |
| GeophObject | **inspireId** | localId | GRAV_BASE_4500 |
| | | namespace | http://mfgi.hu/inspire |
| | **citation** | name | KISKUNFÉLEGYHÁZA, 4500 Gravity Base Station |
| | | Date | 21.3.2011 |
| | **projectedGeometry** | Point id | GM_GRAV_BASE_4500-gm-1 |
| | | srsName | EPSG:23700 |
| | | geometry | 714014 154852 |
| | **verticalExtent** | | unknown |
| | **distributionInfo** | url | http://mfgi.hu/inspire/DIST_MBFH |
| | | name | Magyar Bányászati és Földtani Hivatal, MBFH |
| | **largerWork** | localId | CMP_GRAV_BASE |
| | | namespace | http://mfgi.hu/inspire |
| **Geoph Measurement** | **platformType** | | ground |
| | **relatedModel** | | missing |
| | **relatedNetwork** | | UEGN |
| GeophStation | **stationType** | | gravityStation |
| | **stationRank** | | 1stOrderBase |
| | **shape** | | #gm-1 |

# INSPIRE EXTENSION – possibilities for data providers

Apart from mandatory CORE requirements, there is a possibility to extend provided data in the framework of the INSPIRE extension of the Geology theme data specification:

## EXTENSION

| Extension FeatureType | Description |
|---|---|
| **Project** | Enables grouping of objects in larger units |
| **GeophModel** | Describes models. Models have a broader concept in INSPIRE and include for ex. grids, maps etc. |
| **OtherGeophMeasurement** | Adds methods in the measurementType codelist |
| **Process** | Comes from another standard (Observations & Measurements), which is very general and has broad possibilities. Enables for ex. provision of raw measured data. |

# CGS and geophysical data

- in 2016 – approx. 20 main data sets identified for INSPIRE (in different forms)
- in 2017 – focus on:
  - metadata description
  - analysis of INSPIRE codelists
  - initiation of data harmonization process

**→ analysis of geophysical data available within the CzechGeo consortium**

# Thank you for your attention!

*Lucie Kondrová, Roman Kujal, Jitka Faugnerová*
*lucie.kondrova@geology.cz*

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**http://czechgeo.cz/**

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