

# Automated SPASE Metadata Generation for DSCOVER

William Rowland

Anna Milan

CU/CIRES, NOAA/NCEI

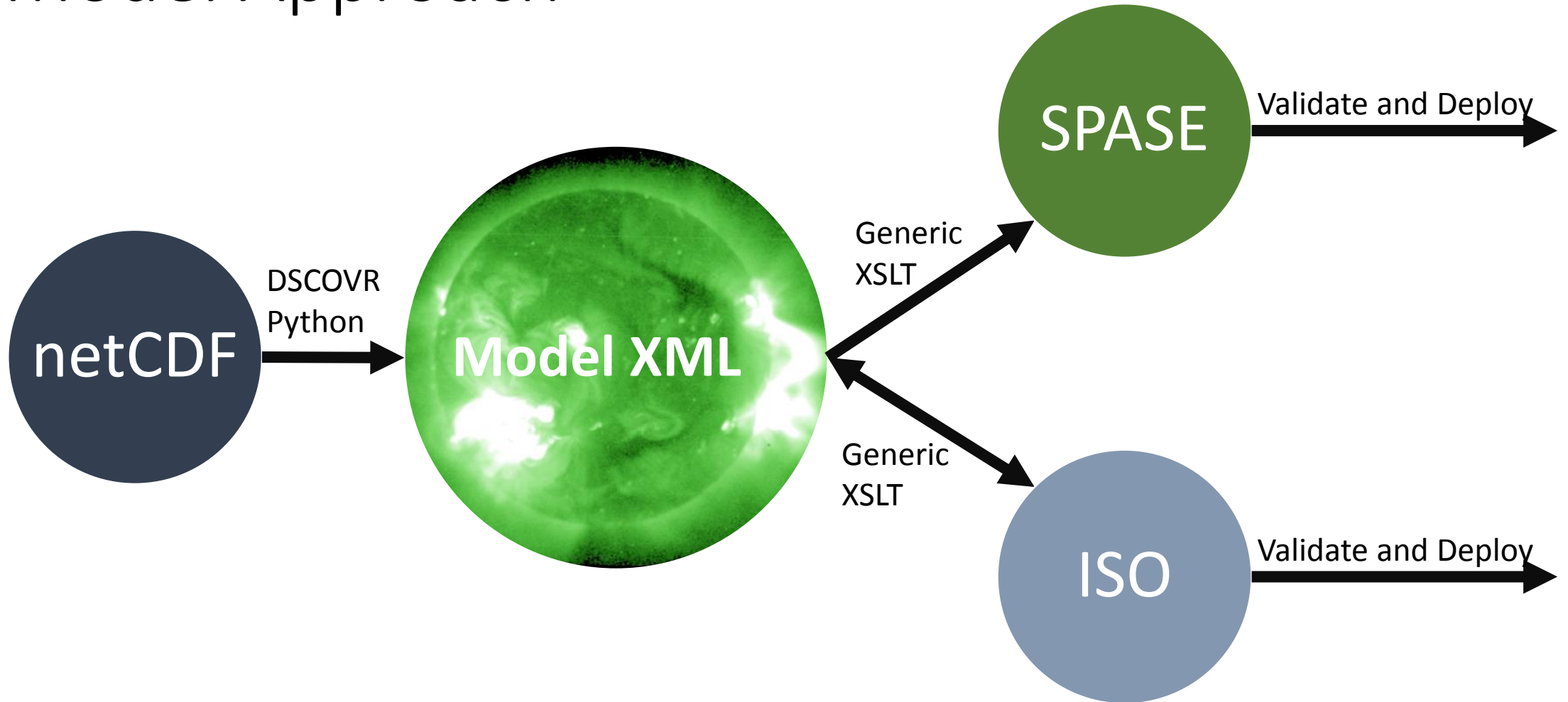
# Why did we do this?

- ISO metadata are required for data held at NCEI.
- SPASE metadata are much better for DSCOV R data users.
- Needed a method to simplify generating and maintaining both.
- There is overlap between the two, but there are elements in required for each metadata representation that are not present in the other
  - Also needed to avoid potential issues as SPASE or ISO standards evolve
- Wanted something that could also be applied to other datasets/standards in the long term.

# ResourceHeader/CI\_Citation

MODEL		SPASE	ISO
resourceName	1..1	Spase.ResourceHeader.ResourceName	CI_Citation.title
alternateName	0..*	Spase.ResourceHeader.AlternateName	CI_Citation.alternateTitle
releaseDateTime	1..1	Spase.ResourceHeader.ReleaseDate	CI_Citation.CI_Date.dateTime CI_Citation.CI_Date.dateType
expirationDate	0..1	Spase.ResourceHeader.ExpirationDate	na
description	1..1	Spase.ResourceHeader.Description	na
acknowledgement	0..1	Spase.ResourceHeader.Acknowledgement	na
		na	CI_Citation.edition
		na	CI_Citation.editionDate
identifier	0..*	na	CI_Citation.identifier
contact	1..*	Spase.ResourceHeader.Contact	CI_Citation.citedResponsibleParty
contact.ID	1..1	Spase.ResourceHeader.Contact.PersonID	CI_Citation.citedResponsibleParty (@id)
contact.role	1..1	Spase.ResourceHeader.Contact.Role	CI_Citation.citedResponsibleParty.role
informationURL	0..*	Spase.ResourceHeader.InformationURL	CI_Citation.citedResponsibleParty
informationURL.linkage	1..1	Spase.ResourceHeader.InformationURL.URL	CI_Citation.citedResponsibleParty.onlineResource.linkage
informationURL.name	0..1	Spase.ResourceHeader.InformationURL.Name	CI_Citation.citedResponsibleParty.onlineResource.name
informationURL.description	0..1	Spase.ResourceHeader.InformationURL.Description	CI_Citation.citedResponsibleParty.onlineResource.description
		Spase.ResourceHeader.InformationURL.Language	na
		na	CI_Citation.citedResponsibleParty.onlineResource.function
		na	CI_Citation.presentationForm
		na	CI_Citation.series (name, issue, page)
		na	CI_Citation.otherCitationDetails
		na	CI_Citation.collectiveTitle
		na	CI_Citation.ISBN
		na	CI_Citation.ISSN
		Spase.ResourceHeader.Association (ID, Type, Note)	na
priorID	0..*	Spase.ResourceHeader.PriorID	na

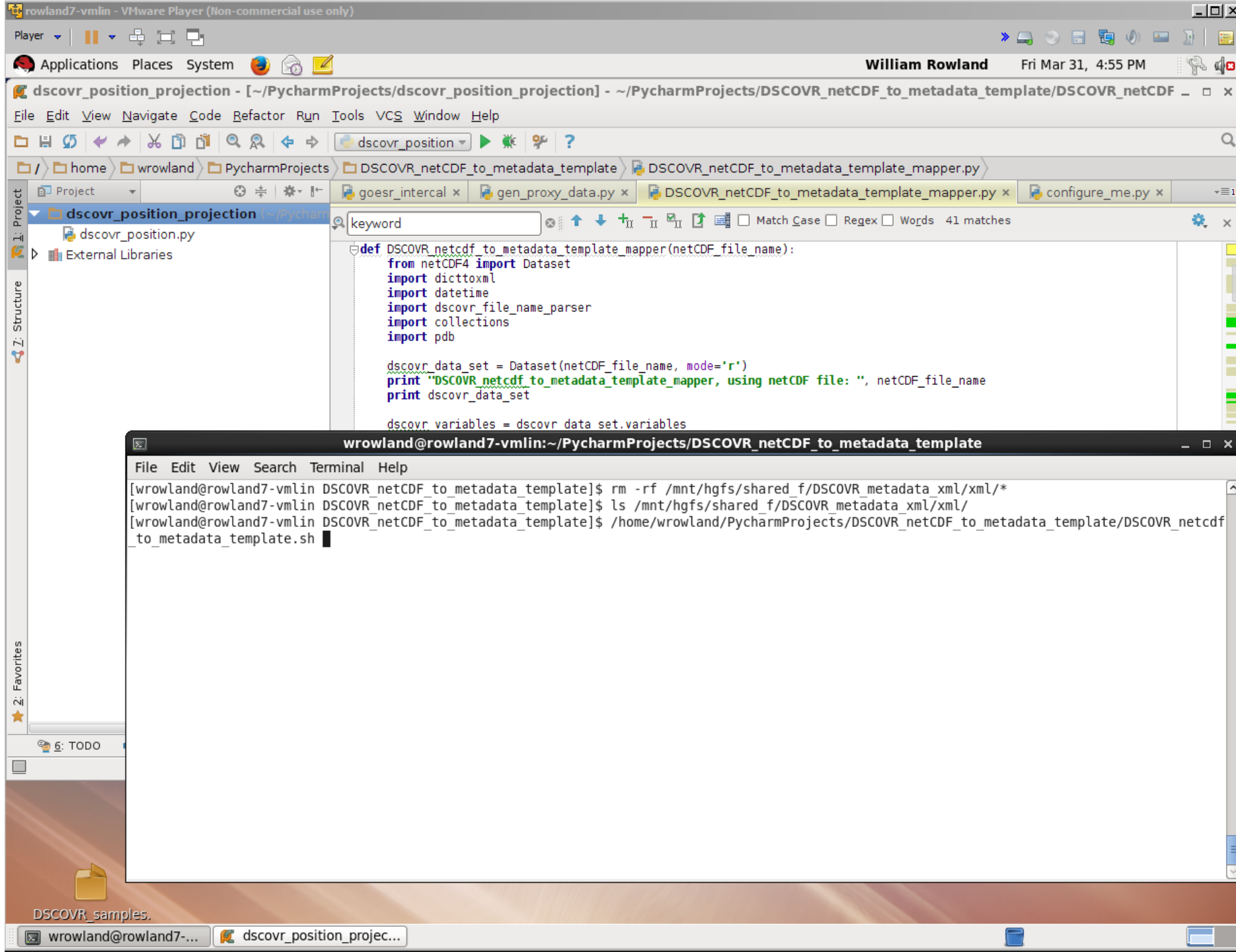
# Model Approach



# Recent Example – new version of files from Provider

- Easier to validate or identify changes with existing metadata
  - Process handled most new fields automatically
  - <5 minutes of work to address one new field that it did not understand
    - And that I did not know had been added
- Easier to create metadata for new data
  - No changes to XSLT
  - Relatively minor python code changes
- Total time for a comprehensive (and accurate) update of all metadata update reduced significantly, at least for me.

(Virtual) Demo



XML Editor - <Oxygen/>

File Edit Find Project Options Tools Document Window Help

Saxon-EE External Tools XPath 2.0

Project: spase-iso.xpr

- satellite-systems\_dscov
- satellite-systems\_GOES
- satellite-systems\_gps.x
- satellite-systems\_sunja
- space-environment.xml
- space\_environment\_mc
- space\_weather\_produc
- spacecraft-anomalies.x
- index.html
- model
  - xml
    - Apply Transformation Scenario(s)
    - Configure Transformation Scenario(s)...
    - Transform with...
- spase
  - xml

```

1 <?xml version="1.0" ?>
2 <model xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="http://www.ngdc.noaa.gov/metadata/public
3   <numericalData>
4     <metadataDateTime>2017-03-31T16:55:39.439624</metadataDateTime>
5     <spaseID>TBD</spaseID>
6     <name>Spacecraft ephemeris</name>
7     <description>Spacecraft ephemeris</description>
8     <progressCode>onGoing</progressCode>
9     <maintenanceFrequencyCode>asNeeded</maintenanceFrequencyCode>
10    <dataContact spaseIDRef="spase://SMWG/Person/William.F.Rowland" uuidRef="a1805125-0604-441f-b5e8-922fcd357cac" title="WFR" contactRo
11    <dataContact spaseIDRef="spase://SMWG/Person/Douglas.Biesecker" uuidRef="54ab7ec0-1461-11e5-b60b-1697f925ec7b" title="DB" contactRol
12    <partOfProgram uuidRef="TBD" spaseIDRef="spase://SMWG/Observatory/DSCOVER" title="DSCOVER"/>
13    <processingLevel>Calibrated</processingLevel>
    <temporalDescription>
      <startDateTime>2016-03-27T00:00:00Z</startDateTime>
      <relativeStopDate>PT1H0M0S</relativeStopDate>
      <cadence>PT1H0M0S</cadence>
      <exposure>PT1H0M0S</exposure>
    </temporalDescription>
    <observedRegion>Heliosphere.NearEarth</observedRegion>
    <caveats> </caveats>
    <keyword>L1</keyword>
    <keyword>Solar Wind</keyword>
    <keyword>Velocity</keyword>
    <measurementType>Ephemeris</measurementType>
    <contentInformation>
      <Parameter>
        <Name>spacecraft Y velocity GCI</Name>
        <ParameterKey>sat_vy_gci</ParameterKey>
        <Description>spacecraft velocity Y component in GCI</Description>
        <Cadence>PT1H0M0S</Cadence>
        <Units>km/s</Units>
        <UnitsConversion>1.0E3&gt;m/s</UnitsConversion>
      </Parameter>
    </contentInformation>
  </numericalData>
</model>

```

Batch validation problems

F:\DSCOVER\_metadata\_xml\xml\dscovr\_pop.xml [model2standards] Transformation successful U+0009 18 : 1

<partOfProgram uuidRef="TBD" spaseIDRef="spase://SMWG/Observatory/DSCOVER" title="DSCOVER" />



XML Editor window showing the validation of an XML file. The main window displays the XML content for `dscovr_f1m.xml`. A "Success" dialog box is overlaid on the XML content, indicating that the validation was successful.

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <Space xmlns:vc="http://www.w3.org/2007/XMLSchema-versioning"
3   xmlns="http://www.spase-group.org/data/schema"
4   xmlns:spase="http://www.spase-group.org/data/schema"
5   xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
6   xsi:schemaLocation="http://www.spase-group.org/data/schema http://www.spase-group.org/data/schema/spase-2_2_6.xsd">
7   <!--2017-03-31T17:04:19.441-06:00-->
8   <Version>2.2.6</Version>
9   <NumericalData>
10    <ResourceID>spase://NOAA/NumericalData/DSCOVER/FC/f1m</ResourceID>
11    <ResourceHeader>
12      <ResourceName>DSCOVER Faraday Cup Level 2 One Minute Averages</ResourceName>
13      <ReleaseDate>2017-03-31T13:45:17.555712</ReleaseDate>
14      <Description>Solar wind observations collected from Faraday Cup on DSCOVER satellite - 1-minute average of cycle peaks</
15      <Contact>
16        <PersonID>spase://SMWG/Person/William.F.Rowland</PersonID>
17        <Role>TechnicalContact</Role>
18      </Contact>
19      <Contact>
20        <PersonID>spase://SMWG/Person/William.F.Rowland</PersonID>
21        <Role>DataContact</Role>
22      </Contact>
23      <Association>
24        <AssociationID>spase://SMWG/Association/DSCOVER/FC/f1m</AssociationID>
25        <AssociationType>PartOf</AssociationType>
26      </Association>
27    </ResourceHeader>
28    <AccessInformation>
29      <RepositoryID>spase://SMWG/Repository/NOAA/NCEI</RepositoryID>
30      <AccessURL>
31        <URL>http://www.ngdc.noaa.gov/dscovr/portal/index.html#/download</URL>
32      </AccessURL>
33      <Format>NetCDF</Format>
34    </AccessInformation>
35    <ProcessingLevel>Calibrated</ProcessingLevel>
36    <InstrumentID>spase://SMWG/Instrument/DSCOVER/FC</InstrumentID>
37    <InstrumentID>spase://SMWG/Observatory/DSCOVER</InstrumentID>
38    <MeasurementType>ThermalPlasma</MeasurementType>
39    <TemporalDescription>
40      <TimeSpan>
41        <StartDate>2016-03-27T00:00:00Z</StartDate>
42        <RelativeStopDate>PT0H1M0S</RelativeStopDate>
43      </TimeSpan>
44      <Cadence>PT0H1M0S</Cadence>
45      <Exposure>PT0H1M0S</Exposure>

```

The "Success" dialog box contains the following text:

Success

Validation successful.

OK

Push to SVN, and done.