

CME Scoreboard XML version 1

defines CME and "CME Analysis"

CMEForecast @type(beforeEvent/historic)

submitter

scoreboardUserName

name

organization

email

cme

CMEScoreboardID

starttime @type

prediction

shockArrivalTime @positiveError @negativeError

kp

upperLimit

lowerlimit

confidence

dstNT @time

inputParameters

specific model tag

cmeParameters

TimeAt21.5R

radialVelocityKMs

logitudeDeps

latitudeDeps

halfAngleWidthDeps

resolution

ambientSettings

notes

data @filename

UK MetOffice

CME metadata ideas

defines CME, CME analysis, and CME arrival

	Comments
	Represents when a CME will or won't strike a celestial object. An arrival forecast is associated with 1 CME, 1 Enlil run & 1 celestial object. There may be multiple forecasts for the same CME, Enlil run, & celestial object.
CME Arrival Forecast	

CME ID	
Creation time	
Liftoff time	
Longitude	
Latitude	
Radial speed (km/s)	
Half angle	
Time at 21.5Rs	
Type	halo, etc
Source	
Source location	
Comment	Open text

		Versions of a CME represent an observed CME & its evolution over time (as forecasters receive more data). CMEs have a history which is tracked, i.e. Each CME has a number of fields associated with the CME, & a number of fields associated with a 'version' of it.
CME version		
Creation time		
CME arrival time		
Leading time		
Trailing time		
Enlil run date		
Strike		Hit, miss, unclear, merged, not predicted
Comment		open text

CME Arrival Observation	Arrival of a shock at L1
Celestial body	Earth, Mars, Mercury, Venus
CME_id	

CCMC

CME metadata scheme

defines CME

Select Catalog :

SWRC_CATALOG

Enter start time in format (yyyy-MM-dd'T'HH:mm'Z' i.e. 2012-07-12T16:52Z) :

Associated Instrument :

--- Select ---

Additional Detecting Instruments :

- SOHO: LASCO/C2
- SOHO: LASCO/C3
- STEREO A: SECCHI/COR2
- STEREO B: SECCHI/COR2

Source Location (e.g. N11W89) (optional) :

Active Region Number (e.g. 1632) (optional) :

Source Signature Keyword :

- Flare
- Double ribbon flare
- Post eruption arcade
- Filament eruption
- Moving/Opening field lines
- Brightening
- Dimming

Morphology Keyword :

- Flux Rope
- Flux Rope and Shock Candidate
- Loop
- Loop and Shock Candidate
- Jet
- Jet and Shock Candidate
- Other
- Other and Shock Candidate
- No Detection
- No Detection and Shock Candidate
- Preceding
- Preceding and Shock Candidate
- Unknown
- Unknown and Shock Candidate

Note Keyword :

- 3-part structure CME
- Current sheet
- Possible collision with previous CME
- Likely deflection of the event within the FOV
- CME exhibits dimpled front
- Faint event; may affect type assignment
- Event fails/disappears before exiting COR2
- Front Bright front; may be evidence of pileup
- Data gap
- Bright emission (likely H-alpha emission)
- Halo CME
- Keyhole-hole shaped CME
- Outflowing material at the back of the CME
- Event partially overlaps with another CME
- Prominence material (filamentary structures)
- Streamer Blowout following CME
- Solar Energetic Particle event
- Side-lobe Operations
- Surge-like eruption

Select Catalog :

SWRC_CATALOG

Select as the most accurate measurement?

TRUE

Select Measurement Technique :

--- Select ---

Select Detecting Instruments :

- SOHO: LASCO/C2
- SOHO: LASCO/C3
- STEREO A: SECCHI/COR2
- STEREO B: SECCHI/COR2

Select Image Type:

running difference

Longitude (degree) :

Latitude (degree) :

Speed (km/s) :

Speed measured at height (Rs):

HalfAngle (degree) :

Enter Time21.5 in format (yyyy-MM-dd'T'HH:mm'Z' i.e. 2012-07-12T16:52Z) :

Minor half-width (degree) :

Tilt (degree) :

Info/Session URL:

Note :

Select the level of data (0=real-time, 1=real-time checked, 2=science level data analysis)?

0

Measurement Feature Code(s) :

- Leading Edge
- Trailing Edge
- Right Hand Boundary
- Left Hand Boundary
- Black/White Boundary
- Prominence Core
- Disconnection Front
- Shock Front

SIDC metadata

defines CME, CME prediction, Kp prediction

```
▼<Message id="206" time="2017-12-17T08:53:13">
  ▼<!--
    there can be 0 or 1 Alerts tags. Note that 0 tags means an empty message for the time being
  -->
  ▼<Alerts>
    <!-- there has to be at least 1 Alert tag -->
    ▼<Alert>
      ▼<Events>
        ▼<!--
          there has to be at least 1 Event tag. updatenr = 0 => new event, updatenr > 0 update existing event.
        -->
        ▼<Event id="177" updatenr="0" type="CME_arrival">
          <!-- All dates and times in UT, in the ISO8601 standard -->
          ▼<!--
            time is the expected arrival time of the CME at Earth
          -->
          ▼<!--
            time_uncertainty is the uncertainty of the CME arrival time expressed in hours
          -->
          ▼<!--
            min_estimated_peak_K is the minimal estimate of the peak of the local K index of Dourbes
          -->
          ▼<!--
            max_estimated_peak_K is the maximal estimate of the peak of the local K index of Dourbes
          -->
          ▼<!--
            probability_of_arrival is the probability that the CME reaches earth
          -->
          <Arrival time="2017-12-20T00:00:00" time_uncertainty="24" min_estimated_peak_K="2" max_estimated_peak_K="4" probability_of_arrival="20"/>
        ▼<voe:VOEVENT xmlns:lmsal="hhttp://www.lmsal.com/helio-informatics/lmsal-v1.0.xsd" xmlns:voe="http://www.ivoa.net/xml/VOEvent/v1.1"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.lmsal.com/helio-informatics/VOEvent-v1.1.xsd" ivorn="???"
          role="???" version="1.0">
          ▼<Who>
```

```
<spase:Event xmlns:spase="http://www.spase-group.org/data/schema">
  <spase:ResourceID>SPASE://CCMC/Event/CME/DONKI/2017-07-23T02:36:00-CME-001</spase:ResourceID>
  <spase:ResourceHeader>
    <spase:ResourceName>CME/DONKI/2017-07-23T02:36:00-CME-001</spase:ResourceName>
    <spase:AlternateName>{0,unbounded}</spase:AlternateName>
    <spase:ReleaseDate>2013-07-19T15:08Z</spase:ReleaseDate>
    <spase:Description>CME recorded by CCMC/SWRC forecasters</spase:Description>
    <spase:Acknowledgement>CCMC</spase:Acknowledgement>
    <spase:Contact>
      <spase:PersonID>SPASE://CCMC/Person/SWRC/Team</spase:PersonID>
      <spase:Role>Space Weather Forecaster</spase:Role>
    </spase:Contact>
    </spase:InformationURL>
    </spase:Association>
    </spase:PriorID>
  </spase:ResourceHeader>
```

```
<spase:AccessInformation>
  <spase:RepositoryID>SPASE://CCMC/Repository/CCMC/SWDONKI</spase:RepositoryID>
  <spase:Availability>Online</spase:Availability>
  <spase:AccessRights>Open</spase:AccessRights>
  <spase:AccessURL>
    </spase:Name>
    <spase:URL>https://kauai.ccmc.gsfc.nasa.gov/DONKI/view/CME/944/1</spase:URL>
    </spase:ProductKey>
    </spase:Description>
    </spase:Language>
  </AccessURL>
  <spase:Format>HTML</spase:Format>
  </spase:Encoding>
  </spase:DataExtent>
  </spase:Acknowledgement>
</spase:AccessInformation>
```

(!we can also add another access information to include the webservice call to get the CME in JSON format back)

```
<spase:CatalogID>SPASE://CCMC/Catalog/CCMC/DONKI/SWRC-CATALOG</spase:CatalogID>
<spase:InstrumentID>SPASE://CCMC/Instrument/STEREO-A/SECCHI/COR2</spase:InstrumentID>
<spase:InstrumentID>SPASE://CCMC/Instrument/SOHO/LASCO/C3</spase:InstrumentID>
<spase:InstrumentID>SPASE://CCMC/Instrument/STEREO-B/SECCHI/COR2</spase:InstrumentID>
</spase:ObservatoryID>
<spase:PhenomenonType>CoronalMassEjection</spase:PhenomenonType>
<spase:TimeSpan>
  <spase:StartDate>2012-07-23T02:36Z</spase:StartDate>
  </spase:StopDate>
  </spase:RelativeStopDate>
  </spase>Note>
</spase:TimeSpan>
```



```
<spase:Property>
  <spase:Name>Longitude</spase:Name>
  <spase:Description>Longitude</spase:Description>
  </spase:Caveats>
  </spase:PropertyQuantity>
  </spase:Qualifier>
  <spase:CoordinateSystem>
    <spase:CoordinateRepresentation>Spherical</spase:CoordinateRepresentation>
    <spase:CoordinateSystemName>HEEQ</spase:CoordinateSystemName>
  </spase:CoordinateSystem>
  <spase:Units>degree</spase:Units>
  </spase:UnitsConversion>
  <spase:PropertyLabel>Long</spase:PropertyLabel>
  <spase:PropertyValue>130</spase:PropertyValue>
  </spase:PropertyTableURL>
  <spase:ValidMin>-180</spase:ValidMin>
  <spase:ValidMax>180</spase:ValidMax>
  </spase:PropertyModel>
  </spase:ModelURL>
</spase:Property>
```

```
<spase:Property>
  <spase:Name>Latitude</spase:Name>
  <spase:Description>Latitude</spase:Description>
  </spase:Caveats>
  </spase:PropertyQuantity>
  </spase:Qualifier>
  <spase:CoordinateSystem>
    <spase:CoordinateRepresentation>Spherical</spase:CoordinateRepresentation>
    <spase:CoordinateSystemName>HEEQ</spase:CoordinateSystemName>
  </spase:CoordinateSystem>
  <spase:Units>degree</spase:Units>
  </spase:UnitsConversion>
  <spase:PropertyLabel>Lat</spase:PropertyLabel>
  <spase:PropertyValue>5</spase:PropertyValue>
  </spase:PropertyTableURL>
  <spase:ValidMin>-90</spase:ValidMin>
  <spase:ValidMax>90</spase:ValidMax>
  </spase:PropertyModel>
  </spase:ModelURL>
</spase:Property>
```

(!add similar property for: Data Level, Measurement Technique, Image Type, Speed measured at height (Rs), minor half-width, tilt, measurement feature code, measurement note etc.)

</spase:Caveats>

<spase:Keyword>

<spase:type>**Note Keyword**</spase:type>

<spase:value>Halo CME</spase:value>

</spase:Keyword>

<spase:Keyword>

<spase:type>**Source Signature Keyword**</spase:type>

<spase:value>Brightening</spase:value>

</spase:Keyword>

<spase:Keyword>

<spase:type>**Morphology Keyword**</spase:type>

<spase:value>Flux Rope and Shock Candidate</spase:value>

</spase:Keyword>

</spase:InputResourceID>

</spase:Extension>

</spase:Event>

```
<spase:Event xmlns:spase="http://www.spase-group.org/data/schema">
  <spase:ResourceID>{1,1}</spase:ResourceID>
  <spase:ResourceHeader>{1,1}</spase:ResourceHeader>
  <spase:AccessInformation>{1,unbounded}</spase:AccessInformation>
  <spase:CatalogID>{0,1}</spase:CatalogID>
  <spase:InstrumentID>{0,unbounded}</spase:InstrumentID>
  <spase:ObservatoryID>{0,unbounded}</spase:ObservatoryID>
  <spase:PhenomenonType>{1,unbounded}</spase:PhenomenonType>
  <spase:TimeSpan>{0,1}</spase:TimeSpan>
  <spase:Property>{0,unbounded}</spase:Property>
  <spase:Caveats>{0,1}</spase:Caveats>
  <spase:Keyword>{0,unbounded}</spase:Keyword>
  <spase:InputResourceID>{0,unbounded}</spase:InputResourceID>
  <spase:Extension>{0,unbounded}</spase:Extension>
</spase:Event>
```

```
<spase:ResourceHeader xmlns:spase="http://www.spase-group.org/data/schema">
  <spase:ResourceName>{1,1}</spase:ResourceName>
  <spase:AlternateName>{0,unbounded}</spase:AlternateName>
  <spase:ReleaseDate>{1,1}</spase:ReleaseDate>
  <spase:ExpirationDate>{0,1}</spase:ExpirationDate>
  <spase:Description>{1,1}</spase:Description>
  <spase:Acknowledgement>{0,1}</spase:Acknowledgement>
  <spase>Contact>{1,unbounded}</spase>Contact>
  <spase:InformationURL>{0,unbounded}</spase:InformationURL>
  <spase:Association>{0,unbounded}</spase:Association>
  <spase:PriorID>{0,unbounded}</spase:PriorID>
</spase:ResourceHeader>
```

```
<spase:TimeSpan xmlns:spase="http://www.spase-group.org/data/schema">
  <spase:StartDate>{1,1}</spase:StartDate>
  <spase:StopDate>{1,1}</spase:StopDate>
  <spase:RelativeStopDate>{1,1}</spase:RelativeStopDate>
  <spase:Note>{0,unbounded}</spase:Note>
</spase:TimeSpan>
```

```
<spase:Property xmlns:spase="http://www.spase-group.org/data/schema">
  <spase:Name>{0,1}</spase:Name>
  <spase:Description>{0,1}</spase:Description>
  <spase:Caveats>{0,1}</spase:Caveats>
  <spase:PropertyQuantity>{1,1}</spase:PropertyQuantity>
  <spase:Qualifier>{0,unbounded}</spase:Qualifier>
  <spase:CoordinateSystem>{0,1}</spase:CoordinateSystem> (added)
  <spase:Units>{0,1}</spase:Units>
  <spase:UnitsConversion>{0,1}</spase:UnitsConversion>
  <spase:PropertyLabel>{0,1}</spase:PropertyLabel>
  <spase:PropertyValue>{0,1}</spase:PropertyValue>
  <spase:PropertyTableURL>{0,1}</spase:PropertyTableURL>
  <spase:ValidMin>{0,1}</spase:ValidMin>
  <spase:ValidMax>{0,1}</spase:ValidMax>
  <spase:PropertyModel>{0,1}</spase:PropertyModel>
  <spase:ModelURL>{0,1}</spase:ModelURL>
</spase:Property>
```