

ECCC MSC CAP

Convective Alert Modernization – Technical Read Me

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Overview:

Environment and Climate Change Canada's (ECCC) Meteorological Service of Canada (MSC) is introducing free-form polygons to represent the true threat area for a weather hazard. The current practice of county and municipality-based zones <area> block(s) will continue to exist and support existing systems. This initiative is currently only applicable for Tornado Warnings and Severe Thunderstorm Warnings, while all other alert types remain unchanged.

The following are the changes being considered to ECCC CAPs.

- a. New <area> block – to store the true threat area free-form polygon. Note that the zone-based <area> blocks continue to exist. The new <area> block is an addition, not a replacement. Inside the new <area> block, the different parts are as follows:
 - The <areaDesc> element will contain the text description of the new <area> block. There are 4 possible values for <areaDesc> for this new <area> block:
 - <areaDesc>new active threat area</areaDesc> (for newly alerted area of the free-form polygon)
 - <areaDesc>continued active threat area</areaDesc> (for continued alerted area of the free-form polygon)
 - <areaDesc>ended threat area</areaDesc> (for ended alerted area of the free-form polygon)
 - <areaDesc>cancelled threat area</areaDesc> (for cancelled alerted area of the free-form polygon)
 - The <polygon> element will contain the geometry of the free-form polygon of the true threat area, drawn by the forecaster, clipped to its status of interest. The free-form polygon geometry provided can represent the *newly alerted area*, *continued alerted area*, *ended alerted area*, *cancelled alerted area*.
 - Example:
 - <polygon>47.17556,-80.643379 47.22271,-80.717293 47.291561,-80.720543 47.341789,-80.651001 47.343891,-80.549385 47.282719,-79.946434 46.947983,-80.136841 47.17556,-80.643379</polygon>
 - A new <geocode> value name under EC/MSC-SMC layer. This <geocode> identifies that this <area> block is of a free-form polygon geometry, not of a zone-based geometry. There are 4 possible values for this geocode:
 - <valueName>layer:EC-MSC-SMC:DLC:1.1</valueName>
 - <value>issued</value>
(for newly alerted area of the free-form polygon)
 - <valueName>layer:EC-MSC-SMC:DLC:1.1</valueName>
 - <value>continued</value>
(for continued alerted area of the free-form polygon)
 - <valueName>layer:EC-MSC-SMC:DLC:1.1</valueName>
 - <value>ended</value>
(for ended alerted area of the free-form polygon)
 - <valueName>layer:EC-MSC-SMC:DLC:1.1</valueName>
 - <value>cancelled</value>
(for cancelled alerted area of the free-form polygon)
 - The 0-to-many **CAP-CP <geocode>**. This <geocode>, inside this <area> block, represents the CAP-CP geocode zone that is mapped from the free-form polygon. There can be many <geocode>'s inside a single <area> block. Examples:
 - <geocode>
 - <valueName>profile:CAP-CP:Location:0.3</valueName>
 - <value>3548069</value>
 - </geocode>
 - <geocode>
 - <valueName>profile:CAP-CP:Location:0.3</valueName>

- <value>3548072</value>
- </geocode>

Complete example of a full new <area> block:

```
<area>
  <areaDesc>new active threat area</areaDesc>
  <polygon>47.17556,-80.643379 47.22271,-80.717293 47.291561,-80.720543 47.341789,-80.651001
  47.343891,-80.549385 47.282719,-79.946434 46.947983,-80.136841 47.17556,-80.643379</polygon>
  <geocode>
    <valueName>layer:EC-MS-C-SMC:DLC:1.1</valueName>
    <value>issued</value>
  </geocode>
  <geocode>
    <valueName>profile:CAP-CP:Location:0.3</valueName>
    <value>3548069</value>
  </geocode>
</area>
```

b. New parameters to describe storm-specific characteristics. These parameters will be under the EC/MS-C-SMC layer. The new parameters are as follows:

- Speed of Storm – represents the speed of the storm. Units in *km/h* or *knots* depending on if storm is on land or water. Only in active Info Blocks.
 - a. Example:


```
<parameter>
  <valueName>layer:EC-MS-C-SMC:1.1:Storm_Speed</valueName>
  <value>40 km/h</value>
</parameter>
```
- Direction of Storm – represents the direction of the storm. Units in degrees. Only in active Info Blocks.
 - a. Example:


```
<parameter>
  <valueName>layer:EC-MS-C-SMC:1.1:Storm_Direction</valueName>
  <value>90.12841</value>
</parameter>
```
- Geometry Type of Storm – represents the geometry type of the storm. 3 possible string values: *isolated_cell*, *area*, and *line*. Only in active Info Blocks.
 - a. Example:


```
<parameter>
  <valueName>layer:EC-MS-C-SMC:1.1:Storm_Geometry_Type</valueName>
  <value>isolated_cell</value>
</parameter>
```
- Point of Storm – represents the center reference point of the storm. It is possible to have 1, 2, or 3 center reference points, depending on whether the storm was an isolated cell, a line, or an area. Only in active Info Blocks.
 - a. Example:


```
<parameter>
  <valueName>layer:EC-MS-C-SMC:1.1:Storm_Point</valueName>
  <value>51.863808,-115.032158</value>
</parameter>
```

- Time of Storm – represents the time the point of storm was last updated by the forecaster. Only in active Info Blocks.
 - a. Example:


```
<parameter>
<valueName>layer:EC-MS-C-SMC:1.1:Storm_Time</valueName>
<value>20250808153000000</value>
</parameter>
```
- Motion Description – represents the combination of the speed and direction, formatted into proper text. Only in active Info Blocks.
 - a. Example:


```
<parameter>
<valueName>layer:EC-MS-C-SMC:1.1:Motion_Description</valueName>
<value>east at 40 km/h</value>
</parameter>
```
- Storm Position Description – represents the text describing the position (distance and direction) of the storm in relation to a known pre-determined reference location point. Only in active Info Blocks.
 - a. Example:


```
<parameter>
<valueName>layer:EC-MS-C-SMC:1.1:Storm_Position_Description</valueName>
<value>about 25 km southwest of Burnstick Lake</value>
</parameter>
```
- List of Reference Location points – represents the list of known reference location point(s) affected by the warning. This is not the same as the alerted areas that reside in their own <area> blocks. Only in active Info Blocks.
 - a. Example:


```
<parameter>
<valueName>layer:EC-MS-C-SMC:1.1:Reference_Location_Points</valueName>
<value>Water Valley, Cremona Bergen</value>
</parameter>
```

Information on Sample Common Alerting Protocol (CAP) Files

There are 9 sets of scenarios, each exploring its own use case and each containing a set of CAP sample files. The breakdown of the 9 scenarios are as follows.

The '**CAP ID**' represents the ID that is unique to a CAP file.

The '**Step**' represents the sequence of the CAP files.

The '**Description**' describes the forecaster actions performed to produce the CAP files. Image of the Free-form polygon also shared, per step.

The '**Note**' describes the output in the CAP file.

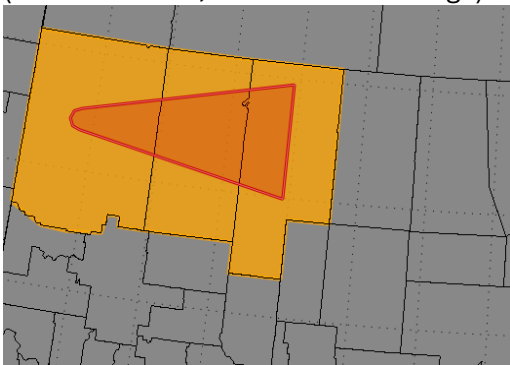
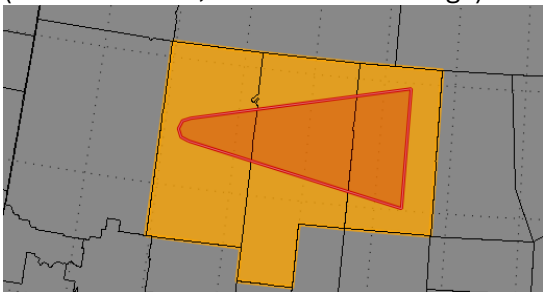
The file name of the CAP sample files references the Step number, CAP ID, and Alert Type Code.

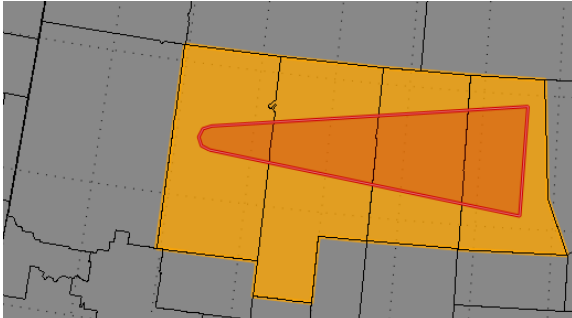
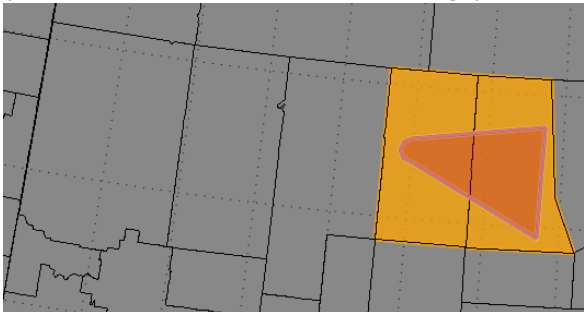
Note: the text content inside certain elements in the CAP sample files are subject to change.

Scenario 1: Base scenario

Severe Thunderstorm Warning is issued, updated a few times, and then ended.

	1	2	3	4	5
Buffalo Narrows and Peter Bond Lake	Severe Thunderstorm V end				
Île à la Crosse and Beauval	Severe Thunderstorm V	Severe Thunderstorm V	Severe Thunderstorm V	end	
Hwy 165 between hwys 2 and 914 incl	Severe Thunderstorm V	Severe Thunderstorm V	Severe Thunderstorm V	end	
Lac la Ronge Prov. Park including La R		Severe Thunderstorm V	Severe Thunderstorm V	Severe Thunderstorm V	end
Seabee Mine			Severe Thunderstorm V	Severe Thunderstorm V	end

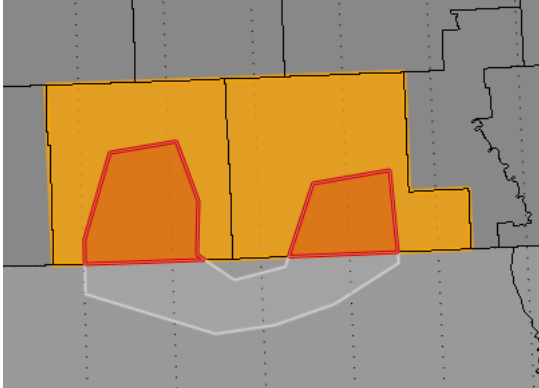
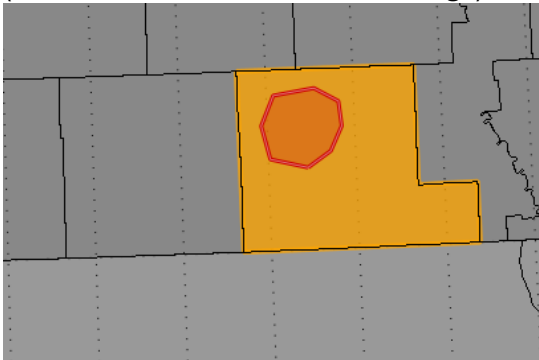
CAP ID (in <identifier> element)	Step	Description	Note
0603626401	1	Issue new <i>Severe Thunderstorm Warning</i>. The active zones triggered are: - Buffalo Narrows and Peter Bond Lake, - Île à la Crosse and Beauval, - Hwy 165 between hwys 2 and 914 including Pinehouse Lake (FFP/DLC in red, Zones/CLC in orange) 	Active Info Block created inside CAP, containing the following area blocks: - Buffalo Narrows and Peter Bond Lake, - Île à la Crosse and Beauval, - Hwy 165 between hwys 2 and 914 including Pinehouse Lake - “new active threat area” (Free-form polygon) New MSC parameters created inside this Info Block.
4172373715	2	Update <i>Severe Thunderstorm Warning</i>. The active zone(s) triggered are: - Île à la Crosse and Beauval - Hwy 165 between hwys 2 and 914 including Pinehouse Lake - Lac la Ronge Prov. Park including La Ronge The ended zone(s) triggered are: - Buffalo Narrows and Peter Bond Lake (FFP/DLC in red, Zones/CLC in orange) 	Active Info Block created inside CAP, containing the following area blocks: - Île à la Crosse and Beauval, - Hwy 165 between hwys 2 and 914 including Pinehouse Lake - Lac la Ronge Prov. Park including La Ronge - “new active threat area” (Free-form polygon) - “continued active threat area” (Free-form polygon) New MSC parameters created inside this Info Block. Ended Info Block created inside CAP, containing the following area blocks: - Buffalo Narrows and Peter Bond Lake - “ended threat area” (Free-form polygon)

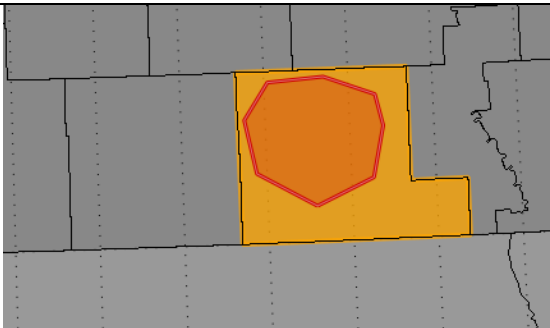
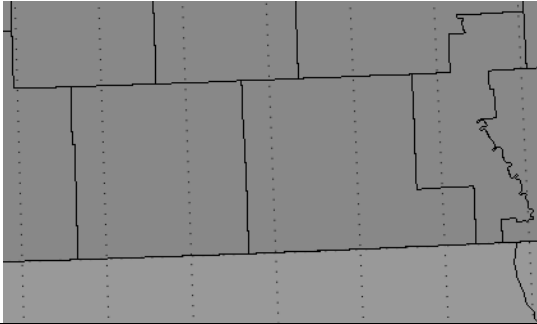
1056356375	3	Update <i>Severe Thunderstorm Warning</i>. The active zone(s) triggered are: - Île à la Crosse and Beauval - Hwy 165 between hwys 2 and 914 including Pinehouse Lake - Lac la Ronge Prov. Park including La Ronge - Seabee Mine (FFP/DLC in red, Zones/CLC in orange) 	Active Info Block created inside CAP, containing the following area blocks: - Île à la Crosse and Beauval, - Hwy 165 between hwys 2 and 914 including Pinehouse Lake - Lac la Ronge Prov. Park including La Ronge - Seabee Mine - “new active threat area” (Free-form polygon) - “continued active threat area” (Free-form polygon) New MSC parameters created inside this Info Block.
3173709854	4	Update <i>Severe Thunderstorm Warning</i>. The active zone(s) triggered are: - Lac la Ronge Prov. Park including La Ronge - Seabee Mine The ended zone(s) triggered are: - Île à la Crosse and Beauval - Hwy 165 between hwys 2 and 914 including Pinehouse Lake (FFP/DLC in red, Zones/CLC in orange) 	Active Info Block created inside CAP, containing the following area blocks: - Lac la Ronge Prov. Park including La Ronge - Seabee Mine - “new active threat area” (Free-form polygon) - “continued active threat area” (Free-form polygon) New MSC parameters created inside this Info Block. Ended Info Block created inside CAP, containing the following area blocks: - Île à la Crosse and Beauval - Hwy 165 between hwys 2 and 914 including Pinehouse Lake - “ended threat area” (Free-form polygon)
4279637765	5	End <i>Severe Thunderstorm Warning</i>. The ended zone(s) triggered are: - Lac la Ronge Prov. Park including La Ronge - Seabee Mine (FFP/DLC in red, Zones/CLC in orange) 	Ended Info Block created inside CAP, containing the following area blocks: - Lac la Ronge Prov. Park including La Ronge - Seabee Mine - “ended threat area” (Free-form polygon)

Scenario 2: Multi-polygon and Hole

Severe Thunderstorm Warning is issued, updated a few times, with geometry reflecting a multi-polygon and a hole, and then cancelled.

	1	2	3	4
R.M. of Stanley incl. Winkler and Morden	Severe Thunderstorm V	end		
Mun. of Rhineland incl. Altona Plum Coulee and Gretna	Severe Thunderstorm V	Severe Thunderstorm V	Severe Thunderstorm V	cancel

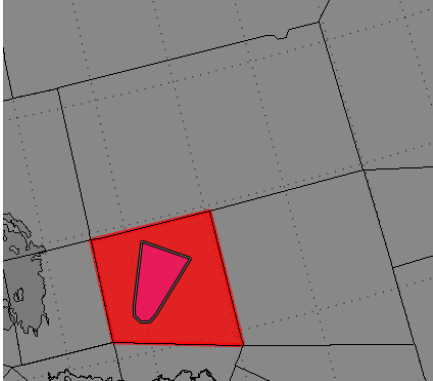
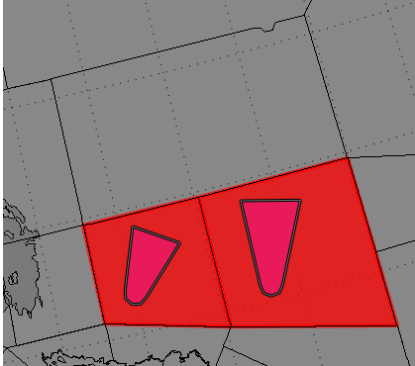
CAP ID (in <identifier> element)	Step	Description	Note
2503690239	1	Issue new <i>Severe Thunderstorm Warning</i>. The active zones triggered are: - R.M. of Stanley incl. Winkler and Morden - Mun. of Rhineland incl. Altona Plum Coulee and Gretna (FFP/DLC in red, Zones/CLC in orange) 	Active Info Block created inside CAP, containing the following area blocks: - R.M. of Stanley incl. Winkler and Morden - Mun. of Rhineland incl. Altona Plum Coulee and Gretna - “new active threat area” (Free-form polygon) - Has Multiple polygons New MSC parameters created inside this Info Block.
1172166163	2	Update <i>Severe Thunderstorm Warning</i>. The active zone(s) triggered are: - Mun. of Rhineland incl. Altona Plum Coulee and Gretna The ended zone(s) triggered are: - R.M. of Stanley incl. Winkler and Morden (FFP/DLC in red, Zones/CLC in orange) 	Active Info Block created inside CAP, containing the following area blocks: - Mun. of Rhineland incl. Altona Plum Coulee and Gretna - “new active threat area” (Free-form polygon) New MSC parameters added inside this Info Block. Ended Info Block created inside CAP, containing the following area blocks: - R.M. of Stanley incl. Winkler and Morden - “ended threat area” (Free-form polygon)
2082977323	3	Update <i>Severe Thunderstorm Warning</i>. The active zone(s) triggered are: - Mun. of Rhineland incl. Altona Plum Coulee and Gretna (FFP/DLC in red, Zones/CLC in orange)	Active Info Block created inside CAP, containing the following area blocks: - Mun. of Rhineland incl. Altona Plum Coulee and Gretna - “new active threat area” (Free-form polygon)

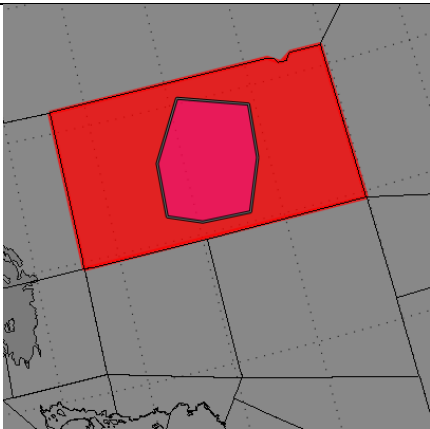
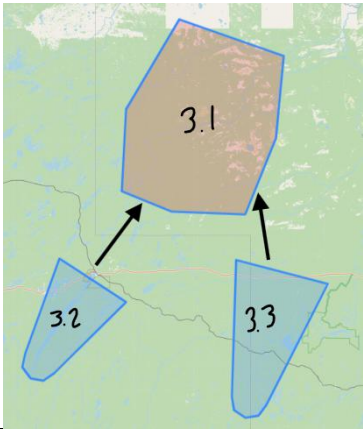
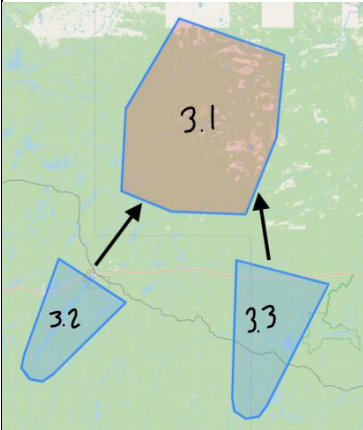
			- Has a hole - “continued active threat area” (Free-form polygon) New MSC parameters added inside CAP.
0791206217	4	Cancel <i>Severe Thunderstorm Warning</i>. The cancelled zone(s) triggered are: - Mun. of Rhineland incl. Altona Plum Coulee and Gretna (FFP/DLC in red, Zones/CLC in orange) 	Ended Info Block created inside CAP, containing the following area blocks: - Mun. of Rhineland incl. Altona Plum Coulee and Gretna - “cancelled threat area” (Free-form polygon)

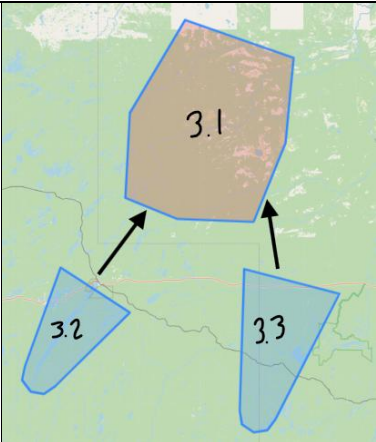
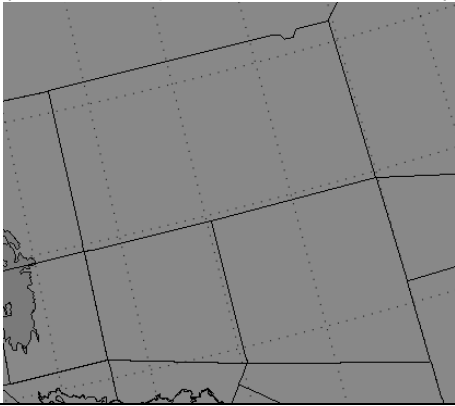
Scenario 3: Merge

Two Tornado Warnings are issued, and then are merged into a new Tornado Warning, and then ended.

			Merge			
	1	2	3.1	3.2	3.3	4
Geraldton - Longlac - Caramat	Tornado Warning 1			end - TRW 1		
Manitouwadge - Hornepayne		Tornado Warning 2			end - TRW 2	
Nakina - Aroland - Pagwa			Tornado Warning 3			end - TRW 3

CAP ID (in <identifier> element)	Step	Description	Note
1278867845	1	Issue new <i>Tornado Warning 1</i>. The active zone(s) triggered are: - Geraldton - Longlac – Caramat (FFP/DLC in pink, Zones/CLC in red) 	Active Info Block created inside CAP, containing the following area blocks: - Geraldton - Longlac – Caramat - “new active threat area” (Free-form polygon) New MSC parameters created inside this Info Block.
2440698037	2	Issue new separate <i>Tornado Warning 2</i>. The active zone(s) triggered are: - Manitouwadge - Hornepayne (FFP/DLC in pink, Zones/CLC in red) 	Active Info Block created inside CAP, containing the following area blocks: - Manitouwadge - Hornepayne - “new active threat area” (Free-form polygon) New MSC parameters created inside this Info Block.
2169590533	3.1	Merge the <i>Tornado Warning 1</i> and <i>Tornado Warning 2</i> from Step 1 and Step 2 into a new <i>Tornado Warning 3</i>. In the Merged Tornado Warning, the active zone(s) triggered are: - Nakina - Aroland - Pagwa (FFP/DLC in pink, Zones/CLC in red)	In the Merged Tornado Warning, Active Info Block created inside CAP, containing the following area blocks: - Nakina - Aroland - Pagwa - “new active threat area” (Free-form polygon) New MSC parameters created inside this Info Block.

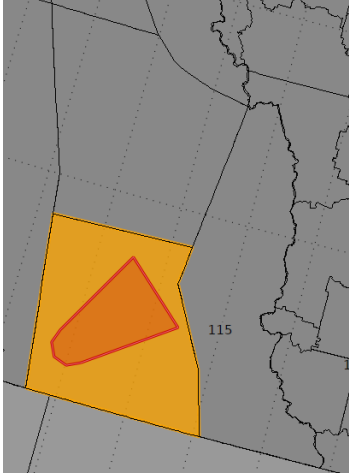
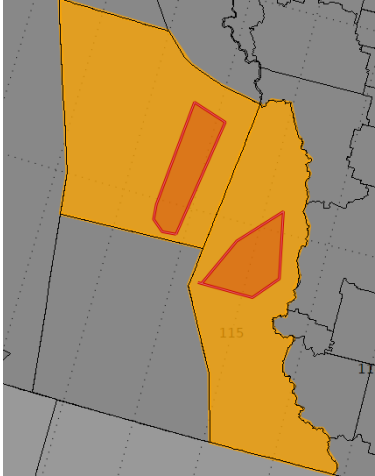
		 	
2602218658	3.2	Merge the <i>Tornado Warning 1</i> and <i>Tornado Warning 2</i> from Step 1 and Step 2 into a new <i>Tornado Warning 3</i>. In the ended Tornado Warning from Step 1, the ended zone(s) triggered are: - Geraldton - Longlac - Caramat 	In the ended Tornado Warning from Step 1, Ended Info Block created inside CAP, containing the following area blocks: - Geraldton - Longlac – Caramat - “ended threat area” (Free-form polygon)
3067365747	3.3	Merge the <i>Tornado Warning 1</i> and <i>Tornado Warning 2</i> from Step 1 and Step 2 into a new <i>Tornado Warning 3</i>. In the ended Tornado Warning from Step 2, the ended zone(s) triggered are: - Manitouwadge - Hornepayne	In the ended Tornado Warning from Step 2, Ended Info Block created inside CAP, containing the following area blocks: - Manitouwadge - Hornepayne - “ended threat area” (Free-form polygon)

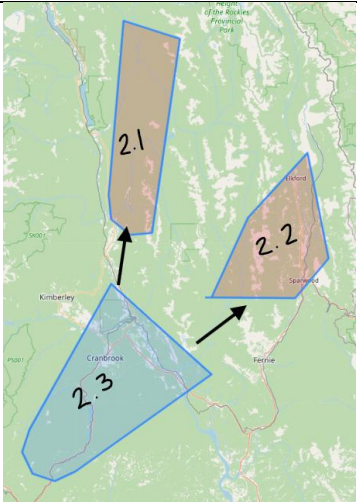
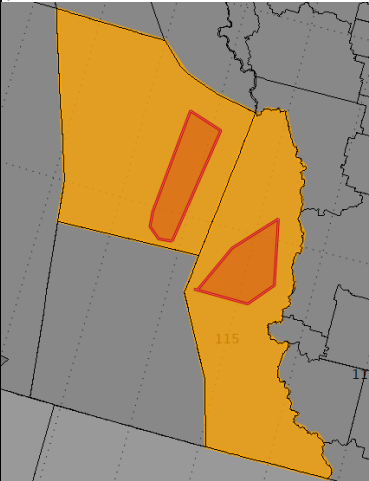
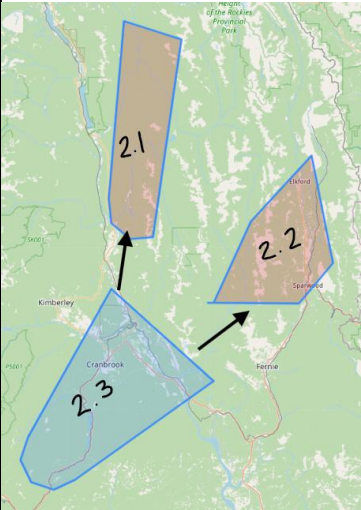
			
3068829312	4	End <i>Tornado Warning</i> 3. The ended zone(s) triggered are: - Nakina - Aroland – Pagwa (FFP/DLC in pink, Zones/CLC in red) 	Ended Info Block created inside CAP, containing the following area blocks: - Nakina - Aroland – Pagwa - “ended threat area” (Free-form polygon)

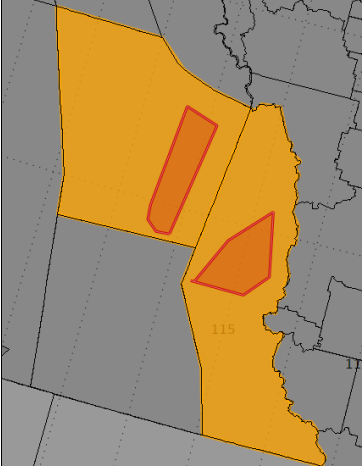
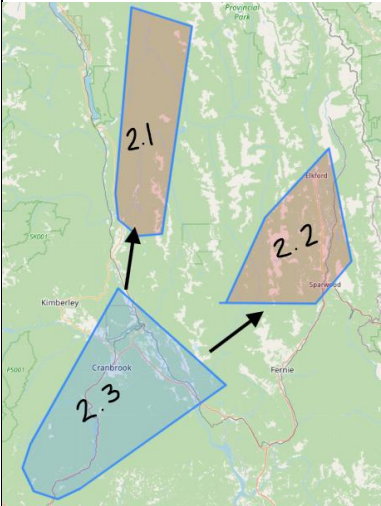
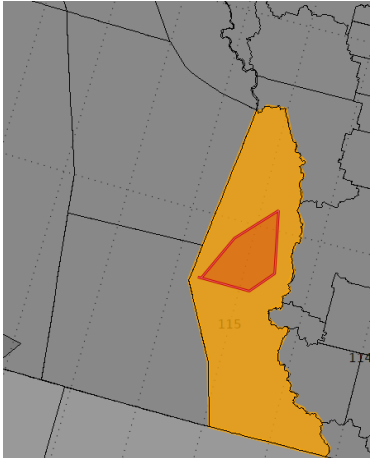
Scenario 4: Split

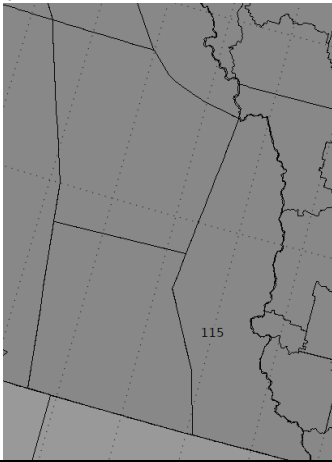
Severe Thunderstorm Warning is issued, is split into two different Severe Thunderstorm Warnings, and then ended.

Split					
	1	2.1	2.2	2.3	3
East Kootenay - south including Cranbrook	Severe Thun. W. 1		end - STW 1		
East Kootenay - north including Invermere		Severe Thun. W. 2		end - STW 2	
Elk Valley			Severe Thun. W. 3		end - STW 3

CAP ID (in <identifier> element)	Step	Description	Note
3458104720	1	Issue new <i>Severe Thunderstorm Warning 1</i>. The active zone(s) triggered are: - East Kootenay - south including Cranbrook (FFP/DLC in red, Zones/CLC in orange) 	Active Info Block created inside CAP, containing the following area blocks: - East Kootenay - south including Cranbrook - “new active threat area” (Free-form polygon) New MSC parameters created inside this Info Block.
2809243090	2.1	Split the <i>Severe Thunderstorm Warning 1</i> from Step 1 into two new Severe Thunderstorm Warnings. In the new <i>Severe Thunderstorm Warning 2</i>, the active zone(s) triggered are: - East Kootenay - north including Invermere (FFP/DLC in red, Zones/CLC in orange) 	In the new Severe Thunderstorm Warning, Active Info Block created inside CAP, containing the following area blocks: - East Kootenay - north including Invermere - “new active threat area” (Free-form polygon) New MSC parameters created inside this Info Block.

			
0462770585	2.2	Split the <i>Severe Thunderstorm Warning 1</i> from Step 1 into two new Severe Thunderstorm Warnings. In the other new Severe Thunderstorm Warning 3, the active zone(s) triggered are: - Elk Valley (FFP/DLC in red, Zones/CLC in orange)  	In the other new Severe Thunderstorm Warning, Active Info Block created inside CAP, containing the following area blocks: - Elk Valley - “new active threat area” (Free-form polygon) New MSC parameters created inside this Info Block.
3397989670	2.3	Split the <i>Severe Thunderstorm Warning 1</i> from Step 1 into two new Severe Thunderstorm Warnings.	In the ended Severe Thunderstorm Warning, that was split,

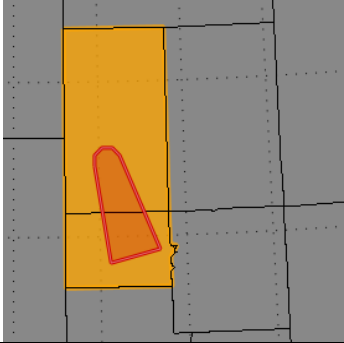
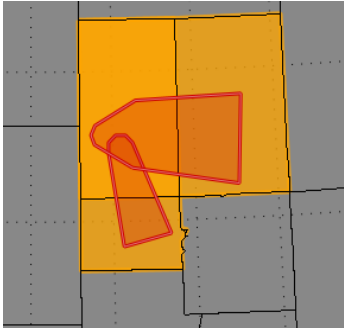
		In the ended <i>Severe Thunderstorm Warning 1</i> from Step 1, that was split, the ended zone(s) triggered are: - East Kootenay - south including Cranbrook (FFP/DLC in red, Zones/CLC in orange)  	Ended Info Block created inside CAP, containing the following area blocks: - East Kootenay - south including Cranbrook - “ended threat area” (Free-form polygon)
4197388768	3	End <i>Severe Thunderstorm Warning 2</i> created from Step 2.1. The ended zone(s) triggered are: - East Kootenay - north including Invermere (FFP/DLC in red, Zones/CLC in orange) 	Ended Info Block created inside CAP, containing the following area blocks: - East Kootenay - north including Invermere - “ended threat area” (Free-form polygon)

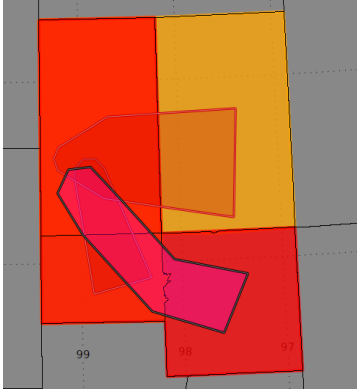
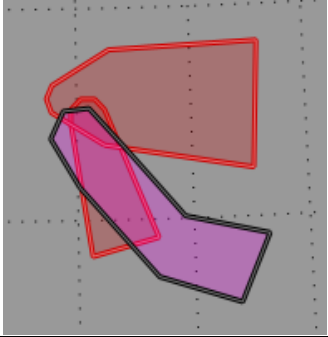
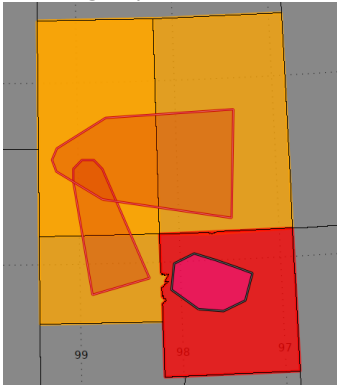
2046775782	4	End Severe <i>Thunderstorm Warning 3</i> created from Step 2.2. The ended zone(s) triggered are: - Elk Valley (FFP/DLC in red, Zones/CLC in orange) 	Ended Info Block created inside CAP, containing the following area blocks: - Elk Valley - “ended threat area” (Free-form polygon)

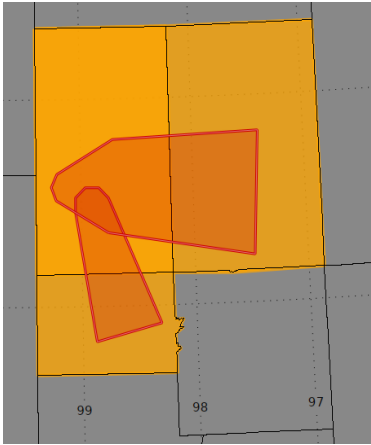
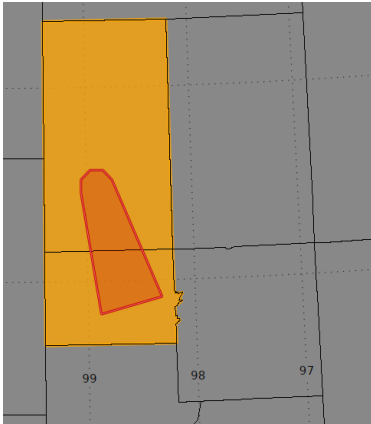
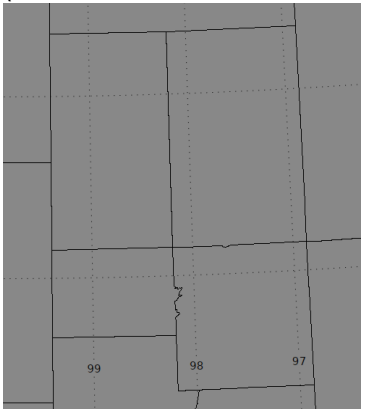
Scenario 5: Coexist

Severe Thunderstorm Warning is issued. Then a new Severe Thunderstorm Warning is issued with some overlap. Then a Tornado Warning is issued with some overlap and then updated. And then each Warning is ended.

	1	2	3	4	5	6	7
Wabowden	Sev. Th. W. 1		Torn. W. 1 - CX with STW1	end - TRW 1			cancel - STW 1
Nelson House	Sev. Th. W. 1	Sev. Th. W. 2 - CX with STW1	Torn. W. 1 - CX with STW1 + STW 2	end - TRW 1		end - STW 2	cancel - STW 1
Thompson Thicket Portage and Cross Lake and Jenpeg		Sev. Th. W. 2				end - STW 2	
			Torn. W. 1	Torn. W. 1	end - TRW 1		

CAP ID (in <identifier> element)	Step	Description	Note
2905103825	1	Issue new <i>Severe Thunderstorm Warning 1</i>. The active zones triggered are: - Wabowden - Nelson House (FFP/DLC in red, Zones/CLC in orange) 	Active Info Block created inside CAP, containing the following area blocks: - Wabowden - Nelson House - “new active threat area” (Free-form polygon) New MSC parameters created inside this Info Block.
2689216883	2	Issue a new <i>Severe Thunderstorm Warning 2</i>. The active zones triggered are: - Nelson House - Thompson Thicket Portage and Pikwitonei Nelson House is also currently in effect under S. T. W. 1. So Nelson House is now under active threat of S. T. W. 1 and S. T. W. 2 (coexisting). (FFP/DLC in red, Zones/CLC in orange) 	Active Info Block created inside CAP, containing the following area blocks: - Nelson House - Thompson Thicket Portage and Pikwitonei - “new active threat area” (Free-form polygon) New MSC parameters created inside this Info Block.
1448783217	3	Issue a new <i>Tornado Warning 1</i>. The active zones triggered are: - Wabowden - Nelson House - Cross Lake and Jenpeg Nelson House is also currently in effect under S. T. W. 1 and S. T. W. 2. So Nelson House is	Active Info Block created inside CAP, containing the following area blocks: - Wabowden - Nelson House - Cross Lake and Jenpeg - “new active threat area” (Free-form polygon)

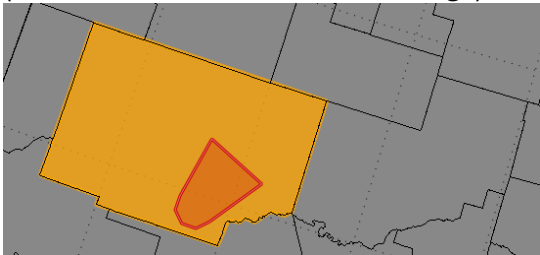
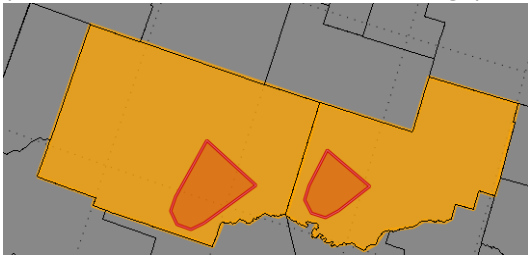
		now under active threat of S. T. W. 1, S. T. W. 2, and T. W. 1 (coexisting).  (FFP/DLC in irregular shapes, Zones/CLC in rectangles) 	New MSC parameters created inside this Info Block.
1717162492	4	Update <i>Tornado Warning 1</i>. The active zone(s) triggered are: - Cross Lake and Jenpeg The ended zone(s) triggered are: - Wabowden - Nelson House (FFP/DLC in irregular shapes, Zones/CLC in rectangles)  The 2 S. T. W.s are still coexisting.	Active Info Block created inside CAP, containing the following area blocks: - Cross Lake and Jenpeg - “new active threat area” (Free-form polygon) - “continued active threat area” (Free-form polygon) New MSC parameters created inside this Info Block. Ended Info Block created inside CAP, containing the following area blocks: - Wabowden - Nelson House - “ended threat area” (Free-form polygon)
1868791896	5	End <i>Tornado Warning 1</i>. The ended zone(s) triggered are: - Cross Lake and Jenpeg	Ended Info Block created inside CAP, containing the following area blocks: - Cross Lake and Jenpeg - “ended threat area” (Free-form polygon)

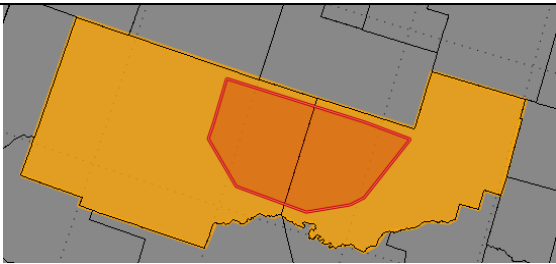
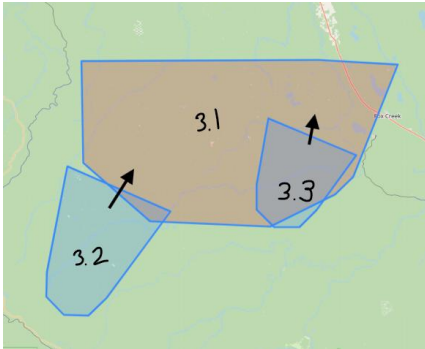
		(FFP/DLC in red, Zones/CLC in orange)  The 2 S. T. W.s are still coexisting.	
1221888179	6	End <i>Severe Thunderstorm Warning 2</i>. The ended zone(s) triggered are: - Nelson House - Thompson Thicket Portage and Pikwitonei (FFP/DLC in red, Zones/CLC in orange) 	Ended Info Block created inside CAP, containing the following area blocks: - Nelson House - Thompson Thicket Portage and Pikwitonei - “ended threat area” (Free-form polygon)
2830351229	7	Cancel <i>Severe Thunderstorm Warning 1</i>. The cancelled zone(s) triggered are: - Wabowden - Nelson House (FFP/DLC in red, Zones/CLC in orange) 	Ended Info Block created inside CAP, containing the following area blocks: - Wabowden - Nelson House - “cancelled threat area” (Free-form polygon)

Scenario 6: Merge – Complex

Two Severe Thunderstorm Warnings are issued, and then are merged into a new Severe Thunderstorm Warning on the same areas as previous messages, and then ended.

			Merge			
	1	2	3.1	3.2	3.3	4
M.D. of Greenview near Grande Cache	Sev. Th. W. 1		Sev. Th. W. 3	end - STW 1		end - STW 3
M.D. of Greenview near Fox Creek		Sev. Th. W. 2	Sev. Th. W. 3		end - STW 2	end - STW 3

CAP ID (in <identifier> element)	Step	Description	Note
0597899347	1	Issue new <i>Severe Thunderstorm Warning 1</i>. The active zone(s) triggered are: - M.D. of Greenview near Grande Cache Botten and Amundson (FFP/DLC in red, Zones/CLC in orange) 	Active Info Block created inside CAP, containing the following area blocks: - M.D. of Greenview near Grande Cache Botten and Amundson - “new active threat area” (Free-form polygon) New MSC parameters created inside this Info Block.
2847648836	2	Issue new separate <i>Severe Thunderstorm Warning 2</i>. The active zone(s) triggered are: - M.D. of Greenview near Fox Creek (FFP/DLC in red, Zones/CLC in orange) 	Active Info Block created inside CAP, containing the following area blocks: - M.D. of Greenview near Fox Creek - “new active threat area” (Free-form polygon) New MSC parameters created inside this Info Block.
2816139074	3.1	Merge the <i>Severe Thunderstorm Warning 1</i> and <i>Severe Thunderstorm Warning 2</i> into a new <i>Severe Thunderstorm Warning 3</i>. In the Merged Severe Thunderstorm Warning 3, the active zone(s) triggered are: - M.D. of Greenview near Grande Cache Botten and Amundson - M.D. of Greenview near Fox Creek (FFP/DLC in red, Zones/CLC in orange)	In the Merged Severe Thunderstorm Warning 3, Active Info Block created inside CAP, containing the following area blocks: - M.D. of Greenview near Grande Cache Botten and Amundson - M.D. of Greenview near Fox Creek - “new active threat area” (Free-form polygon) New MSC parameters created inside this Info Block.

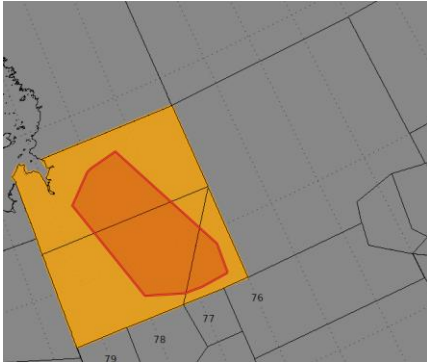
		 	
3777557799	3.2	Merge the <i>Severe Thunderstorm Warning 1</i> and <i>Severe Thunderstorm Warning 2</i> into a new <i>Severe Thunderstorm Warning 3</i>. In the ended <i>Severe Thunderstorm Warning 1</i>, the ended zone(s) triggered are: - M.D. of Greenview near Grande Cache Botten and Amundson	In the ended <i>Severe Thunderstorm Warning 1</i>, Ended Info Block created inside CAP, containing the following area blocks: - M.D. of Greenview near Grande Cache Botten and Amundson - “ended threat area” (Free-form polygon)
2623422426	3.3	Merge the <i>Severe Thunderstorm Warning 1</i> and <i>Severe Thunderstorm Warning 2</i> into a new <i>Severe Thunderstorm Warning 3</i>. In the ended <i>Severe Thunderstorm Warning</i> from Step 2, the ended zone(s) triggered are: - M.D. of Greenview near Fox Creek	In the ended <i>Severe Thunderstorm Warning 2</i>, Ended Info Block created inside CAP, containing the following area blocks: - M.D. of Greenview near Fox Creek - “ended threat area” (Free-form polygon)

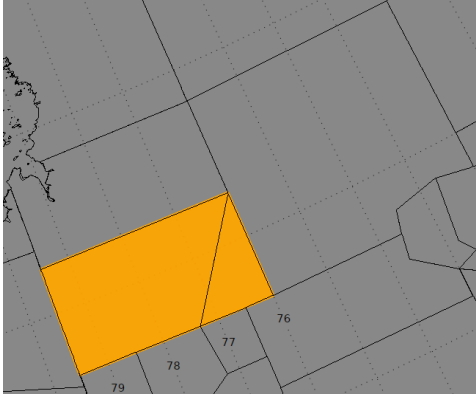
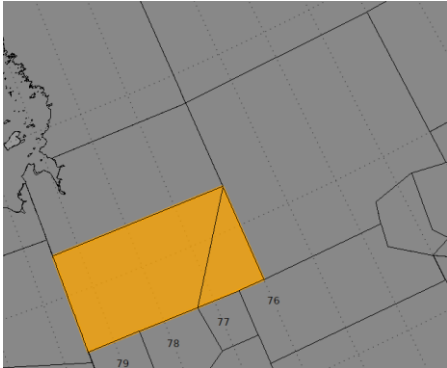
3033246599	4	End Severe <i>Thunderstorm Warning 3</i>. The ended zone(s) triggered are: - M.D. of Greenview near Grande Cache Botten and Amundson - M.D. of Greenview near Fox Creek (FFP/DLC in red, Zones/CLC in orange) 	Ended Info Block created inside CAP, containing the following area blocks: - M.D. of Greenview near Grande Cache Botten and Amundson - M.D. of Greenview near Fox Creek - “ended threat area” (Free-form polygon)
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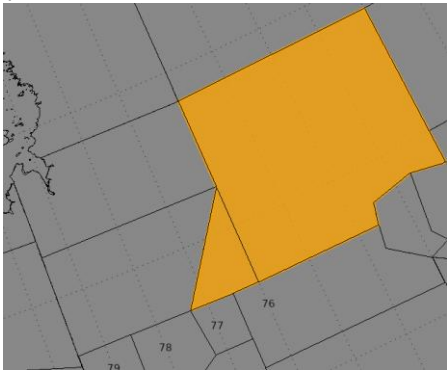
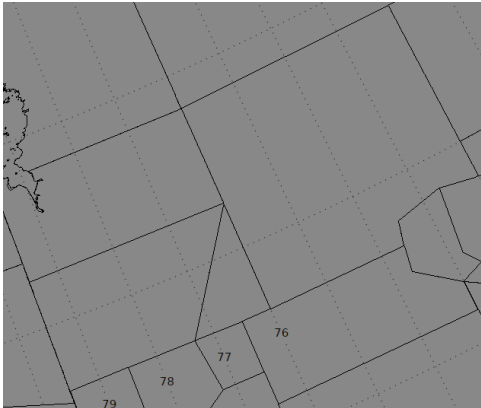
Scenario 7: Fall-back, containing FFP and then not containing FFP

Severe Thunderstorm Warning is issued then updated. Then assume FFP information is not available moving forward. A new Severe Thunderstorm Warning, without FFP information, is issued, and updated a few times, and then ended.

	1	2	3	4	5	6
Waskaganish	Sev. Th. W. 1	end - STW 1		cancel - STW 1 (fallback)		
Joutel - Matagami area	Sev. Th. W. 1	Sev. Th. W. 1	Sev. Th. W. 2 (fallback)	cancel - STW 1 (fallback)	end - STW 2 (fallback)	
Miquelon - Desmaraisville area	Sev. Th. W. 1	Sev. Th. W. 1	Sev. Th. W. 2 (fallback)	cancel - STW 1 (fallback)	Sev. Th. W. 2 (fallback)	end - STW 2 (fallback)
Chibougamau					Sev. Th. W. 2 (fallback)	end - STW 2 (fallback)

CAP ID (in <identifier> element)	Step	Description	Note
1109557109	1	Issue new <i>Severe Thunderstorm Warning 1</i>. The active zones triggered are: - Waskaganish - Joutel - Matagami area - Miquelon - Desmaraisville area (FFP/DLC in red, Zones/CLC in orange) 	Active Info Block created inside CAP, containing the following area blocks: - Waskaganish, - Joutel - Matagami area, - Miquelon - Desmaraisville area - “new active threat area” (Free-form polygon) New MSC parameters created inside this Info Block.
0853139817	2	Update <i>Severe Thunderstorm Warning 1</i>. The active zone(s) triggered are: - Joutel - Matagami area, - Miquelon - Desmaraisville area The ended zone(s) triggered are: - Waskaganish (FFP/DLC in red, Zones/CLC in orange) 	Active Info Block created inside CAP, containing the following area blocks: - Joutel - Matagami area, - Miquelon - Desmaraisville area - “new active threat area” (Free-form polygon) - “continued active threat area” area (Free-form polygon) New MSC parameters created inside this Info Block. Ended Info Block created inside CAP, containing the following area blocks: - Waskaganish, - “ended threat area” (Free-form polygon)

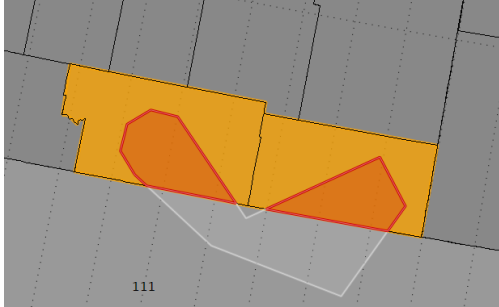
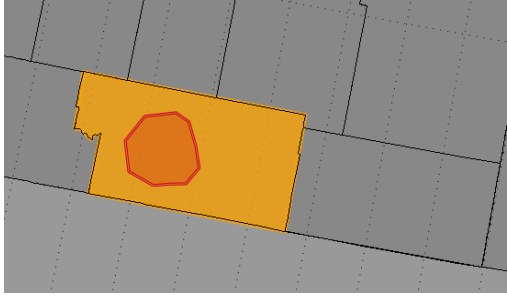
		Assume problems occur with the upgraded service, resulting in no FFP information available in CAP moving forward until further notice.	
0684488950	3	This CAP is sent in a fall-back scenario. There is no FFP area block in this CAP. Issue new <i>Severe Thunderstorm Warning 2</i>. The active zones triggered are: - Joutel - Matagami area - Miquelon - Desmaraisville area (FFP/DLC in red, Zones/CLC in orange) 	Active Info Block created inside CAP, containing the following area blocks: - Joutel - Matagami area - Miquelon - Desmaraisville area
1197265555	4	This CAP is sent in a fall-back scenario. There is no FFP area block in this CAP. Cancel the <i>Severe Thunderstorm Warning 1</i> from step 2. The cancelled zone(s) triggered are: - Waskaganish - Joutel - Matagami area - Miquelon - Desmaraisville area (FFP/DLC in red, Zones/CLC in orange) 	Ended Info Block created inside CAP, containing the following area blocks: - Waskaganish - Joutel - Matagami area - Miquelon - Desmaraisville area Note: Waskaganish was ended in Step 2, but in Step 4 this zone is still included in the Cancel message. This is because the Cancel function means to cancel/retract all zones of the cancelled alert (including zones that were ended).
1216856464	5	This CAP is sent in a fall-back scenario. There is no FFP area block in this CAP. Update <i>Severe Thunderstorm Warning 2</i>.	Active Info Block created inside CAP, containing the following area blocks: - Miquelon - Desmaraisville area - Chibougamau

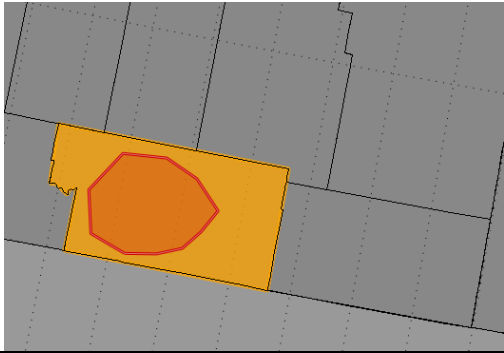
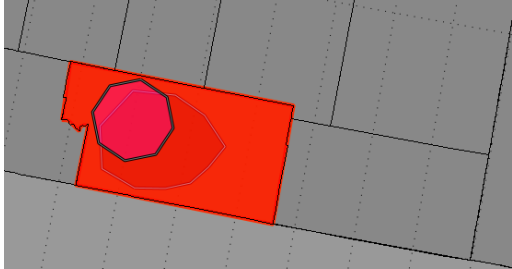
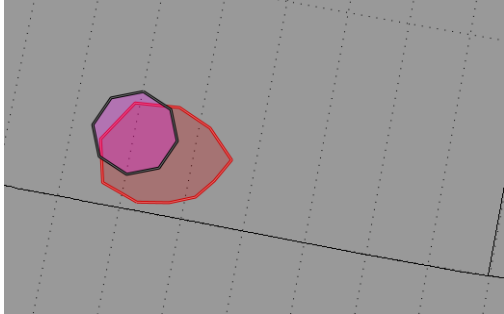
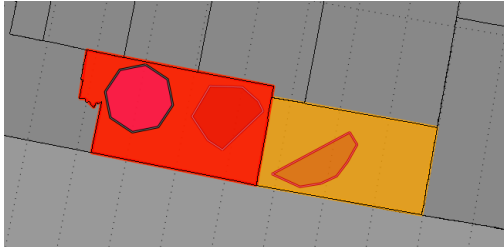
		The active zone(s) triggered are: - Miquelon - Desmaraisville area - Chibougamau The ended zone(s) triggered are: - Joutel - Matagami area (FFP/DLC in red, Zones/CLC in orange) 	Ended Info Block created inside CAP, containing the following area blocks: - Joutel - Matagami area
1183697895	6	This CAP is sent in a fall-back scenario. There is no FFP area block in this CAP. End the <i>Severe Thunderstorm Warning 2</i> from step 5. The ended zone(s) triggered are: - Miquelon - Desmaraisville area - Chibougamau (FFP/DLC in red, Zones/CLC in orange) 	Ended Info Block created inside CAP, containing the following area blocks: - Miquelon - Desmaraisville area - Chibougamau

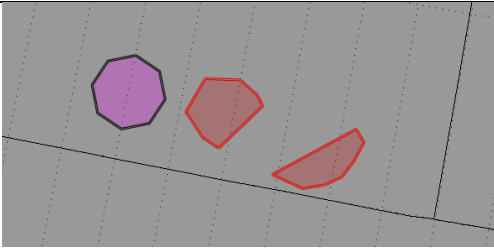
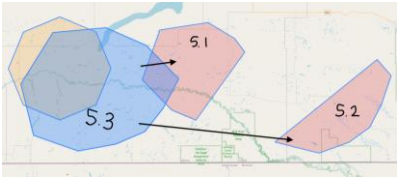
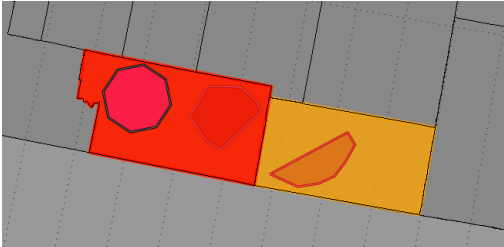
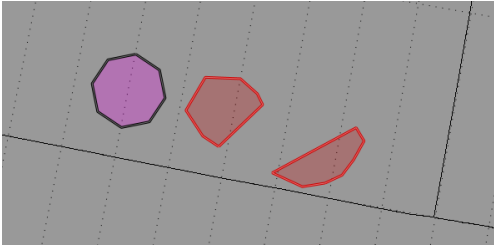
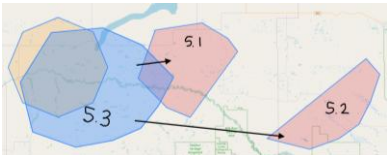
Scenario 8: BI/WI in different scenarios

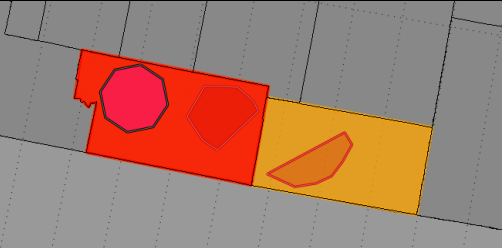
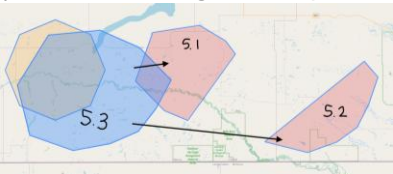
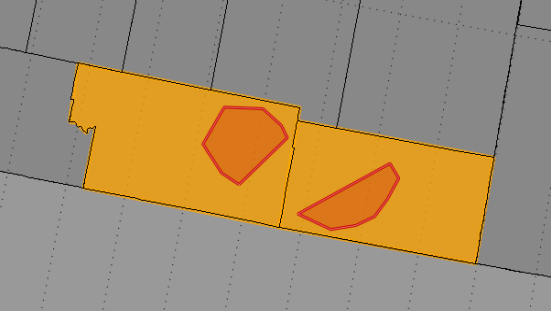
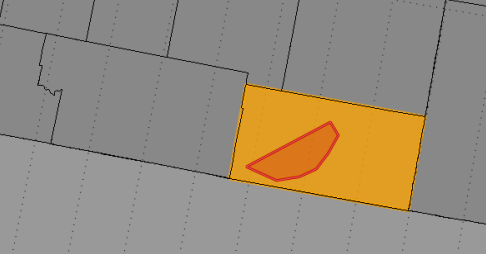
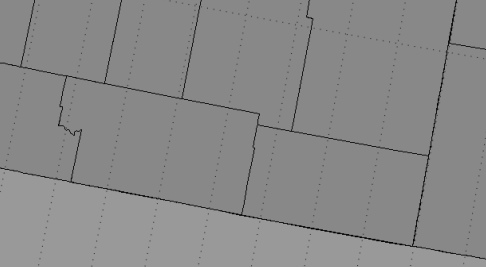
Severe Thunderstorm Warning is issued and updated a few times. A Tornado Warning is issued with overlap areas. The Severe Thunderstorm Warning is then split into two different Severe Thunderstorm Warnings. Then every warning is ended. Various messages in this scenario have Broadcast/Wireless Immediate markers.

					Split					
	1	2	3	4	5.1	5.2	5.3	6	7	8
Co. of Forty Mile near Aden and Kennedy Coulee	Sev. Th. W. 1	Sev. Th. W. 1	Sev. Th. W. 1	Torn. W. 1	Severe Thun. W. 2		end - STW 1	end - TW 1	end - STW 2	
Cypress Co. near Onefour and Wild Horse	Sev. Th. W. 1	end - STW 1				Severe Thun. W. 3				end - STW 3

CAP ID (in <identifier> element)	Step	Description	Note
1063131020	1	Issue new <i>Severe Thunderstorm Warning 1</i>. The active zones triggered are: - Co. of Forty Mile near Aden and Kennedy Coulee - Cypress Co. near Onefour and Wild Horse (FFP/DLC in red, Zones/CLC in orange) 	Active Info Block created inside CAP, containing the following area blocks: - Co. of Forty Mile near Aden and Kennedy Coulee - Cypress Co. near Onefour and Wild Horse - “new active threat area” (Free-form polygon) - Has Multiple polygons New MSC parameters created inside this Info Block.
3887479831	2	Update <i>Severe Thunderstorm Warning 1</i>. The active zone(s) triggered are: - Co. of Forty Mile near Aden and Kennedy Coulee The ended zone(s) triggered are: - Cypress Co. near Onefour and Wild Horse (FFP/DLC in red, Zones/CLC in orange) 	Active Info Block created inside CAP, containing the following area blocks: - Co. of Forty Mile near Aden and Kennedy Coulee - “new active threat area” (Free-form polygon) - “continued active threat area” (Free-form polygon) New MSC parameters added inside this Info Block. Ended Info Block created inside CAP, containing the following area blocks: - Cypress Co. near Onefour and Wild Horse - “ended threat area” (Free-form polygon)
2509249823	3	Update <i>Severe Thunderstorm Warning</i>. The active zone(s) triggered are: - Co. of Forty Mile near Aden and Kennedy Coulee	Active Info Block created inside CAP, containing the following area blocks: - Co. of Forty Mile near Aden and Kennedy Coulee

		(FFP/DLC in red, Zones/CLC in orange) 	- “new active threat area” (Free-form polygon) - Has a hole - “continued active threat area” (Free-form polygon) New MSC parameters added inside CAP.
1418834627	4	Issue a new <i>Tornado Warning 1</i>. The active zones triggered are: - Co. of Forty Mile near Aden and Kennedy Coulee This zone is also currently in effect under S. T. W. 1. (coexisting).  (FFP/DLC in irregular shapes, Zones/CLC in rectangles) 	Active Info Block created inside CAP, containing the following area blocks: - Co. of Forty Mile near Aden and Kennedy Coulee - “new active threat area” (Free-form polygon) New MSC parameters created inside this Info Block.
0926109620	5.1	Split the <i>Severe Thunderstorm Warning 1</i> into two new Severe Thunderstorm Warnings. In the new <i>Severe Thunderstorm Warning 2</i>, the active zone(s) triggered are: - Co. of Forty Mile near Aden and Kennedy Coulee  (FFP/DLC in irregular shapes, Zones/CLC in rectangles)	In the new Severe Thunderstorm Warning 2, Active Info Block created inside CAP, containing the following area blocks: - Co. of Forty Mile near Aden and Kennedy Coulee - “new active threat area” (Free-form polygon) New MSC parameters created inside this Info Block.

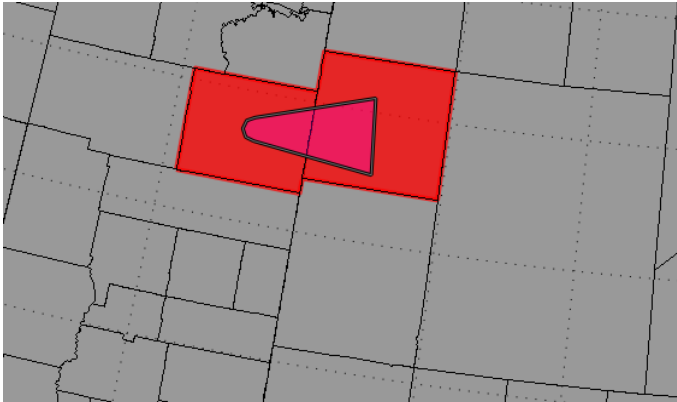
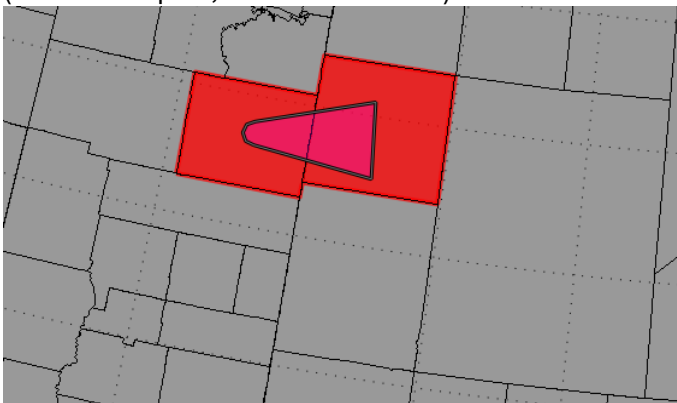
		 (the purple here is the Tornado warning , the 2 reds here are the severe thunderstorm warnings from step 5.1 and 5.2) 	
4042578303	5.2	Split the <i>Severe Thunderstorm Warning 1</i> into two new Severe Thunderstorm Warnings. In the new Severe Thunderstorm Warning 3, the active zone(s) triggered are: - Cypress Co. near Onefour and Wild Horse  (FFP/DLC in irregular shapes, Zones/CLC in rectangles)  (the purple here is the alert from step 4, the 2 reds here are the alerts from step 5.1 and 5.2) 	In the new Severe Thunderstorm Warning 3, Active Info Block created inside CAP, containing the following area blocks: - Cypress Co. near Onefour and Wild Horse - “new active threat area” (Free-form polygon) New MSC parameters created inside this Info Block.
2589803114	5.3	Split the <i>Severe Thunderstorm Warning 1</i> into two new Severe Thunderstorm Warnings. In the ended Severe Thunderstorm Warning 1, that was split, the ended zone(s) triggered are: - Co. of Forty Mile near Aden and Kennedy Coulee	In the ended Severe Thunderstorm Warning 1, that was split, Ended Info Block created inside CAP, containing the following area blocks: - Co. of Forty Mile near Aden and Kennedy Coulee

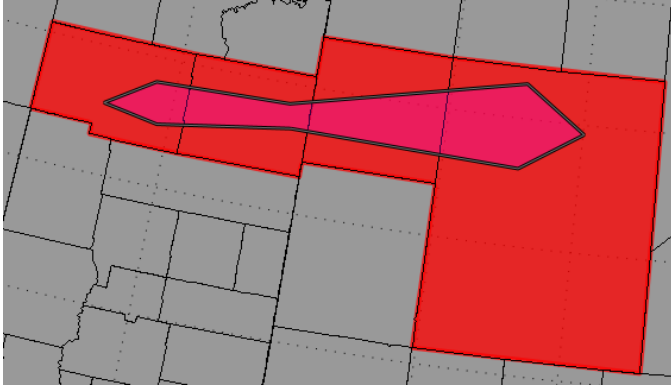
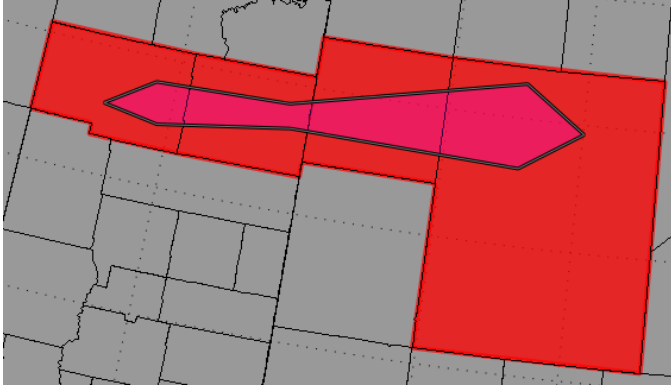
		 (FFP/DLC in irregular shapes, Zones/CLC in rectangles) 	- “ended threat area” (Free-form polygon)
0758331046	6	End <i>Tornado Warning</i> created from Step 4. The ended zone(s) triggered are: - Co. of Forty Mile near Aden and Kennedy Coulee (FFP/DLC in red, Zones/CLC in orange) 	Ended Info Block created inside CAP, containing the following area blocks: - Co. of Forty Mile near Aden and Kennedy Coulee - “ended threat area” (Free-form polygon)
3576136380	7	End <i>Severe Thunderstorm Warning 2</i> created from Step 5.1. The ended zone(s) triggered are: - Co. of Forty Mile near Aden and Kennedy Coulee (FFP/DLC in red, Zones/CLC in orange) 	Ended Info Block created inside CAP, containing the following area blocks: - Co. of Forty Mile near Aden and Kennedy Coulee - “ended threat area” (Free-form polygon)
1326461622	8	End <i>Severe Thunderstorm Warning 3</i> created from Step 5.2. The ended zone(s) triggered are: - Cypress Co. near Onefour and Wild Horse (FFP/DLC in red, Zones/CLC in orange) 	Ended Info Block created inside CAP, containing the following area blocks: - Cypress Co. near Onefour and Wild Horse - “ended threat area” (Free-form polygon)

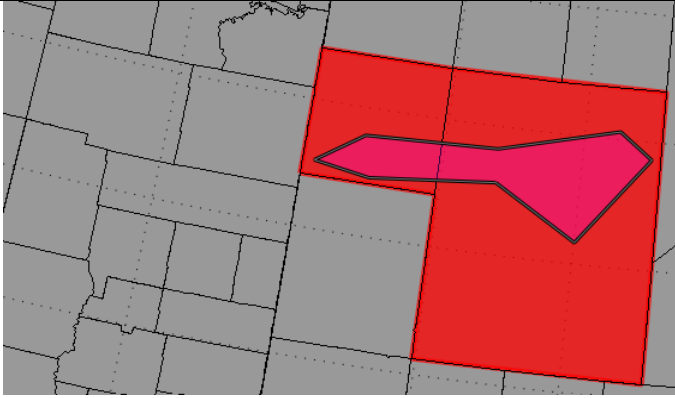
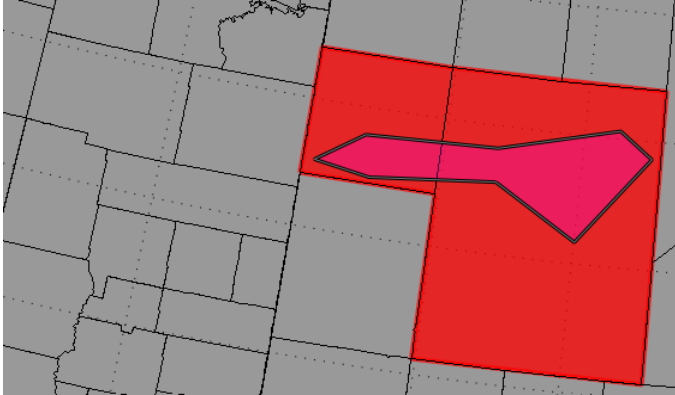
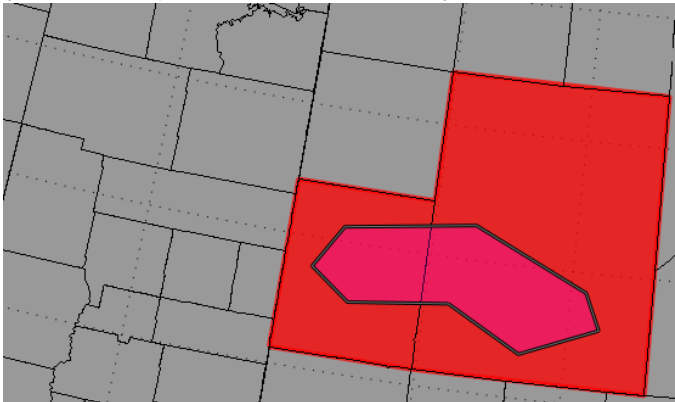
Scenario 9: Alert crossing Provinces

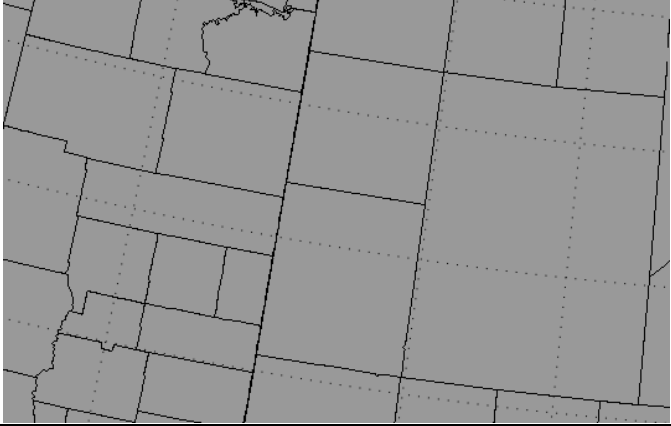
Tornado Warning is issued on an area crossing two provinces, and then updated, and then shifted to be only within one province, and then ended.

		(1)		(2)		(3)		(4)	(5)
		1.1	1.2	2.1	2.2	3.1	3.2	4	5
Alberta	R.M. of Wood Buffalo near Nam			Torn. W. - AB		end - TW AB			
Alberta	R.M. of Wood Buffalo near Clau	Torn. W. - AB		Torn. W. - AB		end - TW AB			
Saskatchewan	Cluff Lake Mine		Torn. W. - SK		Torn. W. - SK		Torn. W. - SK	end - TW SK	
Saskatchewan	Cree Lake - Key Lake				Torn. W. - SK		Torn. W. - SK	Torn. W. - SK	end - TW SK
Saskatchewan	La Loche and Clearwater River F							Torn. W. - SK	end - TW SK

CAP ID (in <identifier> element)	Step	Description	Note
3705127970	1.1	Issue <i>Tornado Warning</i>. The active zones triggered are: - R.M. of Wood Buffalo near Clausen's Landing and Chipewyan 201FG (FFP/DLC in pink, Zones/CLC in red) 	The CAPs in step 1.1 and step 1.2 have the same sent time because this storm was drawn as one shape by the forecaster. This CAP in this step is for the <i>Alberta</i> area. Active Info Block created inside CAP, containing the following area blocks: - R.M. of Wood Buffalo near Clausen's Landing and Chipewyan 201FG - “new active threat area” (Free-form polygon) New MSC parameters created inside this Info Block.
0634786760	1.2	Issue <i>Tornado Warning</i>. The active zones triggered are: - Cluff Lake Mine (FFP/DLC in pink, Zones/CLC in red) 	The CAPs in step 1.1 and step 1.2 have the same sent time because this storm was drawn as one shape by the forecaster. This CAP in this step is for the <i>Saskatchewan</i> area. Active Info Block created inside CAP, containing the following area blocks: - Cluff Lake Mine - “new active threat area” (Free-form polygon) New MSC parameters created inside this Info Block.
0643355492	2.1	Update <i>Tornado Warning</i>. The active zones triggered are: - R.M. of Wood Buffalo near Clausen's Landing and Chipewyan 201FG	The CAPs in step 2.1 and step 2.2 have the same sent time because this storm was drawn as one

		- R.M. of Wood Buffalo near Namur River and Namur Lake Reserves (FFP/DLC in pink, Zones/CLC in red) 	shape by the forecaster. This CAP in this step is for the <i>Alberta</i> area. Active Info Block created inside CAP, containing the following area blocks: - R.M. of Wood Buffalo near Clausen's Landing and Chipewyan 201FG - R.M. of Wood Buffalo near Namur River and Namur Lake Reserves - “new active threat area” (Free-form polygon) - “continued active threat area” (Free-form polygon) New MSC parameters created inside this Info Block.
2630479596	2.2	Update <i>Tornado Warning</i>. The active zones triggered are: - Cluff Lake Mine - Cree Lake – Key Lake (FFP/DLC in pink, Zones/CLC in red) 	The CAPs in step 2.1 and step 2.2 have the same sent time because this storm was drawn as one shape by the forecaster. This CAP in this step is for the <i>Saskatchewan</i> area. Active Info Block created inside CAP, containing the following area blocks: - Cluff Lake Mine - Cree Lake – Key Lake - “new active threat area” (Free-form polygon) - “continued active threat area” (Free-form polygon) New MSC parameters created inside this Info Block.
1063119983	3.1	Update <i>Tornado Warning</i>. The ended zone(s) triggered are: - R.M. of Wood Buffalo near Clausen's Landing and Chipewyan 201FG - R.M. of Wood Buffalo near Namur River and Namur Lake Reserves (FFP/DLC in pink, Zones/CLC in red)	The CAPs in step 3.1 and step 3.2 have the same sent time because this storm was drawn as one shape by the forecaster. This CAP in this step is for the <i>Alberta</i> area. The alert in <i>Alberta</i> is fully ended, the storm shifted into Saskatchewan completely. Ended Info Block created inside CAP, containing the following area blocks:

			- R.M. of Wood Buffalo near Clausen's Landing and Chipewyan 201FG - R.M. of Wood Buffalo near Namur River and Namur Lake Reserves - “ended threat area” (Free-form polygon)
3700991133	3.2	Update <i>Tornado Warning</i>. The active zones triggered are: - Cluff Lake Mine - Cree Lake – Key Lake (FFP/DLC in pink, Zones/CLC in red) 	The CAPs in step 3.1 and step 3.2 have the same sent time because this storm was drawn as one shape by the forecaster. This CAP in this step is for the Saskatchewan area. Active Info Block created inside CAP, containing the following area blocks: - Cluff Lake Mine - Cree Lake – Key Lake - “new active threat area” (Free-form polygon) - “continued active threat area” (Free-form polygon) New MSC parameters created inside this Info Block.
2314019935	4	Update <i>Tornado Warning</i>. The active zone(s) triggered are: - Cree Lake – Key Lake - La Loche and Clearwater River Prov. Park The ended zone(s) triggered are: - Cluff Lake Mine (FFP/DLC in pink, Zones/CLC in red) 	Active Info Block created inside CAP, containing the following area blocks: - Cree Lake – Key Lake - La Loche and Clearwater River Prov. Park - “new active threat area” (Free-form polygon) New MSC parameters added inside this Info Block. Ended Info Block created inside CAP, containing the following area blocks: - Cluff Lake Mine - “ended threat area” (Free-form polygon)

1920077980	5	End <i>Tornado Warning</i>. The ended zone(s) triggered are: - Cree Lake – Key Lake - La Loche and Clearwater River Prov. Park (FFP/DLC in pink, Zones/CLC in red) 	Ended Info Block created inside CAP, containing the following area blocks: - Cree Lake – Key Lake - La Loche and Clearwater River Prov. Park - “ended threat area” (Free-form polygon)
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Please address business and/or technical questions to bradley.power@ec.gc.ca and pongsakorn.rahman@ec.gc.ca.