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Event Terms List Version 1.0

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Related work:
This document is related to:

- *Common Alerting Protocol Version 1.2*. Edited by Jacob Westfall. 01 July 2010. OASIS Standard. Latest version: http://docs.oasis-open.org/emergency/cap/v1.2/CAP-v1.2.html.

Abstract:

This Event Terms List has been developed for use with any version of the Common Alerting Protocol (CAP) or related systems.

The variety of practices employed regarding “event” types in CAP messages makes it difficult to compare messages from different sources. The problem has been presented as an interoperability issue where some consumers of CAP struggle to compare differences in language and meaning of the terms used in the <event> element in CAP.

The <event> element is the focus for this effort as it is the only required element in CAP directly associated with the subject event for a CAP message. Aligning practices surrounding this element, as opposed to other possible candidate elements, is the choice adopted in this work product for addressing this interoperability concern.

However, the <event> element is a free form text element meant to communicate with the final audience and not necessarily for the automated systems that process CAP. The only constraint on is that it be in the same language as indicated by the element in the block the <event> element is found in. Therefore, for consumers, the ability to rely on this element for uses other than just display is not possible.

With this in mind, the concept of a mapping table where CAP originators and CAP consumers can contribute “event” terms has been conceived. With this table, language terms can be mapped to each other as a reference for client consumers thus allowing some measure of interoperability to be possible.

Status:

This is a Non-Standards Track Work Product. The patent provisions of the OASIS IPR Policy do not apply.

This document was last revised or approved by the OASIS Emergency Management TC on the above date. The level of approval is also listed above. Check the "Latest stage" location noted above for possible later revisions of this document. Any other numbered Versions and other technical work produced by the Technical Committee (TC) are listed at https://www.oasis-open.org/committees/tc_home.php?wg_abbrev=emergency#technical.

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Table of Contents

1 Introduction

The OASIS EMTC (the Organization for the Advancement of Structured Information System's Emergency Management Technical Committee), has developed a list of "event" terms for use in alert messaging systems. The creation of the list is an attempt to put some consistency into an important piece of information found in alert messages – the subject event.

A subject event justifies why the message was created in the first place, and it helps the alerting authority anchor the information contained in the message to a specific time and place for the message audience. The subject event is central to alert messages that use the OASIS CAP standard.

The EMTC generated the "event" terms list in response to concerns expressed by the Global Disaster Preparedness Center (GDPC), a resource center hosted by the American Red Cross. The GDPC raised concerns that the varied and free form usage of event terms is inconsistent in CAP services making it difficult to compare messages from different originating sources. As consumers of alert messages, they found there is no quick and definitive way to compare the language and meaning of the event terms found in various CAP messages.

Understanding this, the EMTC approach to the "event terms list" (referred to as the "list" going forward in this document) has been to focus on "how" the list can help when comparing event terms. The design and management of the list is such that consumers of CAP messages, looking to compare event terms from different originating sources, will have a means to do so.

The EMTC also recognizes that many alerting authorities have their own terms; and that these terms, some long established, already work well in the communities they serve. Therefore, with the advent of the list, it is not suggested that alerting authorities change to using the OASIS event terms as listed, it is only suggested that the originating CAP systems for those authorities make a reference to the terms.

Essentially, the EMTC defers to each and every alerting authority their choice of terms as those authorities have had many years to create a relationship with their audiences. The goal of this EMTC list is only to facilitate a more interoperable exchange of information to consuming parties. Interoperability means that consumers, even those not associated with alerting authority in any way, should also be able to easily process the information. With the methodology outlined in this document, it is hoped this objective can be accomplished. The OASIS EMTC is asking CAP originators and CAP consumers to play a part in making this happen. Ultimately, OASIS hopes users, like the GDPC, will see the benefits.

2 Background - CAP Design

CAP is designed as a means to convey information associated to an event of interest. It does this for the purposes of alerting audiences to the impacts of that same event.

Identifying an event of interest starts the process of creating an alert with the event becoming the subject of the alert message. Subsequently, CAP is then used to house the pieces of information associated to that alert. Consumers of CAP messages, those considered partners to the alerting authorities generating alerts, help disseminate and present that information to the intended final audience.

Before a discussion on conveying information can be made however, additional background on a variety of concepts pertaining to alerting information, including the meaning of the term “event” as it used in CAP, is required.

2.1 What is an Event?

An event is something that happens in a given place during an interval of time. It is the recognition of some activity that is a deviation from the normal state of things. An event only becomes significant when affected parties observe, or are anticipated to observe, some known measure of impact. On a very basic level, simply existing is enough for an event to generate interest. On a more practical level, authorities, with expertise on the nature of certain hazardous or concerning events, may classify an event as significant based on the real or anticipated impacts of the event.

In the case of “Public Alerting”, alerting authorities determine whether the impacts of an “event of interest” is concerning enough to issue a formal alert. This is their responsibility; and they can do this consistently because they have built up a pre-defined and deterministic cause for alarm based on a known set of conditions of similar events. In this situation, the alerting authority has assumed the role of defining the impacts of significance on behalf of the public audience they serve. An event, based on those measures, becomes the subject of an alert.

2.2 Interoperability

CAP consumers are aware that some of the pieces of information within a CAP message are optional while some of the information is required. The <event> element within a CAP message is a required element. It is the only required element in a CAP message that by definition is directly associated with the subject event. Unfortunately, this has resulted in many CAP consumers attempting to rely on the element as a means of comparing the subject events across messages.

However, the <event> element is a free form text element meant to communicate with the final audience and not meant for the automated systems to process and make decisions on. The only constraint on <event> is that it be in the same language as indicated by the <language> element of the <info> block - but even that constraint is not easily confirmed. Therefore, for consumers such as the GDPC, the ability to rely on this element as currently defined, for uses other than display purposes, is not always possible.

Consequently, it is understandable that some believe that the varied use of the <event> element contradicts the concept of interoperability. One possible solution might be to

have originators standardize use of the <event> element to some standard list of values to overcome this interoperability problem. However, it is the opinion of the EMTC, that the <event> element in CAP should not be re-purposed for this task. The <event> element has been established as an audience element and should remain as such. The EMTC believes other existing CAP elements should be employed to facilitate interoperability.

2.3 What is a Type?

To “type” something is to declare something (formally, or informally) as sharing similar characteristics to things that went before it. Three key points to be made when “typing” something are…

1) Who is making the declaration?
2) How is it formalized?
3) What pre-existing characteristics are actually being “typed”?

CAP makes heavy use of the concept of “type”, but for things like subject events, thwe EMTC doesn’t actually define the characteristics. CAP leaves the typing of events up to the communities that use CAP. Type will figure prominently in the discussions in this document.

2.4 What is an Event Type?

When an event is identified as a subject event, it is helpful if the alerting authority and audience have some pre-existing knowledge of the expected impacts of the event. That prior knowledge comes from associating the subject event to a type of event. When an alerting authority classifies an event based on a set of conditions of other similar events, they are effectively categorizing a type of event. All events that meet that set of conditions are categorized to that type. Knowing what the impacts for a certain type of event are, assists in communicating the impacts of any single subject event.

The <event> element, as defined in CAP, is described as… “the text denoting the type of the subject event of the alert message”. This means that the authority is not actually citing the specific subject event in the <event> element, only its type. The most common way to classify a type of event is by a term given to describing the environmental conditions associated to the event. For example, a subject event like “hurricane Katrina”, would have an event type classification of “hurricane” as hurricane is the term given to events with weather conditions characteristic of a hurricane.

However, other typing schemes may work off of other aspects of an event. For example, alerting authorities may “type” an event based on its duration (short / medium / long), or its severity (extreme / severe / moderate / etc.), or its scale (EF0 through EF5 as with tornado events) or use proxy terms such as in color based systems (red / orange / yellow), etc. The EMTC list is primarily based on the most common typing classification – an event’s “physical” characteristics – but other typing terms are present.

2.5 What is an Alert?

An alert is a transmitted “signal” to heighten attention and/or initiate preparation for action. For this attention and preparation to be meaningful, a real or anticipated subject

event is necessary. As stated, it is by reference to this subject event that the alert ties the message found in the alert to a time and place.

For many alerting authorities, an event, simply by its event type definition, is an alert-able event. For example, a “dangerous animal” is an alert-able event simply because of what its event type definition is. For other authorities, the event is only significant and alert-able when a marked set of environmental conditions define its type. For example, an authority may declare a “wind” event an alert-able event based on a certain wind speed level marker. Regardless of how the need for an alert was determined, the authority went through a subjective analysis identifying event types. All this so that the subject event for any given alert message has a type classification that aids in constructing alert messages for an audience.

2.6 What is an Alert Type?

Identifying events and event types is often not enough. Organizing an alert message and using meaningful terms for communicating hazardous or concerning impacts to an audience is just as important. This is the social aspect of alerting and this is where the concept of an alert type arises.

An alert type is usually just the type of event transposed to also being the type of alert. For example, a “blizzard event”, of event type “blizzard”, would often lead to a “blizzard alert” of alert type “blizzard”. Since an alert message requires a subject event to center the message on, it is natural to make this simple transposition of event types to alert types. This transposition activity holds true for other event type schemes as well (i.e. a “Red event” becoming a “Red alert”, etc.).

However, the practice of setting an alert type for alerting authorities is just as inconsistent around the world as is setting event types. For example, a “hot dry weather” event, conducive to the possibility of bush fires, may result in alerts such as “bushfire emergency” or “red flag warning”. The alert types here are “bushfire” and “red flag”, two terms not necessarily or immediately understood to mean similar things – especially across different communities. Secondly, is the event type considered to be “bushfire” or “dry weather”?

Regardless of the what the event terms used actually signify, the overall social aspect of alerting has been established within existing communities that uses those terms. Furthermore, for this exampled case, it should be pointed out that the alert terms “emergency” and “warning” are not uncommon variations for the choice of term for an alert. Nevertheless, the conclusion is that the practice of using terms for naming events and alerts can vary considerably making comparisons difficult.

Ultimately, public alerting is not meaningful if the message is not understood. Regardless of the term assigned to the event or alert, the social responsibility of an alerting authority is to effectively communicate the hazards and concerns associated to a subject event. In each case, representatives of the alerting authorities that chose these terms felt the chosen term was the correct one for that situation. OASIS is not claiming any jurisdiction over the choice of terms in public alerting or in CAP.

2.7 Event terms

Since defining what event types are alert-able is a “community of users” decision; and since properly referencing subject events to an event type is an aspect of effective communication, picking the best term (display label) for known event types can’t possibly be done centrally by one group. To be successful in such an exercise, there are a number of additional considerations regarding an event that all parties need to understand. The list below is not a complete list but the list does demonstrate various aspects of the larger event term problem.

1) The same event can affect different communities differently. For example, a smoke event can affect one community concerned with Air Quality and Health while at the same time it can affect another community concerned with Transportation.
2) The same event can affect a national community in one way and a local community in other ways. For example, a forest fire can affect logistical firefighting exercises on a large scale but cause evacuation activities on a smaller scale.
3) The same event may be easy to describe in one language but not another. For example, the term “AMBER alert” is well known in the English language but its direct translation may not easily survive into another language.
4) An event may be composed of many smaller events and the communication of many smaller events simultaneously may require the use of a broader term to get the message across. For example, storm surge, heavy rain, strong winds, coastal flooding, tornadoes, etc… may all be part of a hurricane event but a message full of references to the many smaller events may not be effective as they could overwhelm the audience. However, any of these smaller events occurring on their own could easily make up the subject event of a separate alert.
5) An event often comes with descriptors that authorities have used for many years for alerts based on a how the subject event was viewed in the past. The use of these descriptors can create confusion. For example, a “Thunderstorm” event and a “Severe Thunderstorm” event. “Severe” is one of several allowable CAP values used by agents to filter CAP alert messages but if the value is set to “Extreme” and the event is still termed as a “Severe Thunderstorm” confusion can arise.
6) An event may be described differently in cause and effect situations. For example, an earthquake event that spawns a possible tsunami event may result in different originators referencing either event type in a CAP message. The alert is “Tsunami Warning” for an anticipated tsunami event but the cause event was the “Earthquake” event. Alerting Authorities could focus on one, or the other, or the combination of the two, as the subject event of the CAP alert message
7) An event may be considered a trigger event by an alerting authority causing the authority to issue an alert focusing on a secondary event that they themselves want to initiate. For example an “Evacuation Order” that contains a message that talks about the act of evacuating, and may involve very little discussion to the trigger event that spawned the order in the first place.

8) An event may be described by using a proxy term. For example, “red flag” is a term that can be used to describe an event where a triggering weather event is underway that is conducive to a secondary fire event occurring. Much like a tsunami event prompted by an earthquake event, the possible fire event is prompted by an existing weather event. However, in this case, the term “red flag” is a proxy term generalizing the possibility of several fire events.
9) Two event terms may have the same core term but use different adjectives to qualify the event, thus creating two different and independent event types solely based on the choice of adjective. For example, a “bush fire” and a “chemical fire”. While related due to the core term “fire”, they are actually quite different event terms only connected through the broader term “fire”.
10) An event term may not even be an event at all. For example, an “air quality” event is an incomplete definition as air quality is actually a continuous state. It is only implied that the true event is a “poor air quality” event. The repeated usage of the term “air quality”, for the purpose of issuing alerts for “poor air quality”, has led to a subtle training of the audience over time to interpret “air quality” as “poor air quality” when associated with a public alert.
11) An event term choice may be subject to the behaviors and constraints of the presentation systems in play. For example, the idea of keeping messages short for a particular presentation medium, or only including a short attention grabbing <headline>. For example, “highway alert”.

Consequently, for an event terms list to successfully accommodate all interested parties, users of the list have to recognize that the EMTC list of terms will be large to accommodate a variety of interpretations. Any community that contributes new event terms will likely be adding to an ever-growing list. Luckily, there are ways to engineer solutions to such problems.

2.8 CAP Event Type Codes

One strategy to help automated systems that auto-process the delivery of the alert message to the final audience is to codify values for certain pieces of information in the message. Coded values, if formatted properly, can alleviate the dimension of language as an issue to resolve when processing an alert. Applying a code to each item in a list is desirable for automated systems and systems that deal across languages.

Codifying event types is also helpful for applying advanced processing in alerting systems. For example, a coded value for a pre-defined event type allows consumers to have a pre-defined response to any alert message identifying to that event type. That response could be for simple tasks such as routing or filtering or it could be for more advanced tasks such as creating a unique presentation for a certain type of event. In CAP, codifying event types is facilitated by originators populating the <eventCode> element.

2.9 CAP-XML User groups

A group is a collection of participants that share a common trait. In the case of XML, a language based messaging protocol, there are two basic user groups. One group is the final intended audience (the end clients of the information contained within the XML message), and the other is the partner group (the agents along the path of distribution that source the XML for decision making information). Both these groups are served by the same CAP-XML alert message.

There are elements in the CAP schema that are intended for one group or the other. For example, many of the free form elements in the CAP-XML schema are intended for the final audience, while many of the enumerated elements are intended for agents along the path of distribution. As stated, the <event> element is free form and conveys an event type to the final audience. Conversely, the <eventCode> element is a pre-determined element with managed values, and conveys an event type to agents along the path, allowing them to set up something specific in advance such as filtering or routing.

2.10 CAP <category>

There is one additional event-based decision-making element in CAP. Unfortunately, like <event>, it does not come with much guidance on how to use it properly and existing practices with this element are as varied as the <event> element itself. Besides, it is a very general element and is not specific enough for consumers to use for most event comparison purposes. This element is the <category> element.

Like the <event> element, the CAP standard defines a <category> element to broadly categorize subject events referenced in CAP messages. The <category> element is a required element with a set of pre-defined values for this element. Automated processing on the consumer side could potentially use <category> to filter to some sort of subset list of events of interest. Unfortunately, consumers have to rely on the originators upstream to set the values appropriately and consistently if interoperability is the goal.

Usually, originators just include one <category> for the hazardous or concerning event of interest in a CAP message, and that assignment usually just aligns with the jurisdiction of the alerting authority. This defeats the purpose of <category>. For example, an alert issued for a “volcanic ash” event may have a <category> assignment of only “Health” if a health agency issued the alert, whereas it may have a <category> assignment of only “Met” if a meteorological agency issued the alert. The recommended use of <category> is to have multiple instances of the <category> element present in the CAP message - one instance for each category that applies. The CAP consumer could then reliably use a filter to look for the categories that interest them and then just present the <event> value as is to the intended audience. If an alerting authority added a new event type to their list of alert-able events, a consumer could build a system filtered to <category> and not miss any new type of alert that the authority added.

OASIS is not intending to promote <category> as a solution to the <event> issue stated in the outset of this document, but understanding <category> and its traits as compared to <event>, will help us address the event issue. The two important traits are re-listed here.

1) <category> allows for multiple instances of the element in a single CAP message. Therefore, CAP does not constrain events to being in only one category. The <event> element however is constrained to one value.
2) <category> is a broad categorization, not enough to inform on the full nature of the event. Therefore, consumers can use it to filter alerts only at the broad scale. The <event> element however can be either broad or narrow as needed for the audience of interest

These two differences figure in the methodology to solve the event type comparison issue discussed in this document.

3 Event Term Spectrums

As mentioned earlier, the social aspect of alerting is a primary concern for alerting authorities. The chosen terms used in the message exist for the purposes of communicating effectively with an audience. However, when inspecting the terms used across various systems, not surprisingly, a wide range of terms are used. Upon further inspection, the terms are not just similar terms for the same thing, but terms that span a range of terms across one or more spectra of terms. This happens both at the event level and the alert level and even authorities themselves sometimes have a hard time interpreting one another's choice of terms.

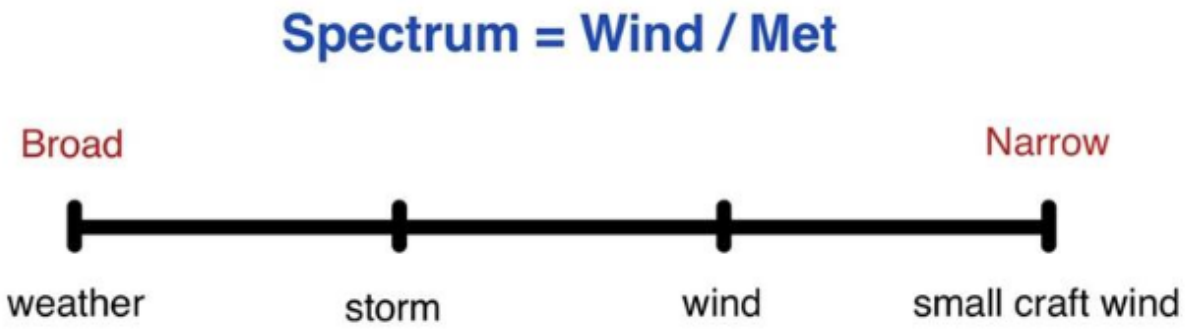
The following is discussion on terms across spectrums, which will factor into the decisions made regarding what event terms may make it into the list.

3.1 Broad to Narrow Spectrum

Terms can be very specific or very general depending on the information that needs to be conveyed. This is especially true for public alerting. For example, usually the term used for the event is often the same term used for the alert (i.e. a "wind" event leading to a "wind warning"). However, some alerting authorities generalize the type of alert by using broader terms (i.e. a "wind" event leading to a "weather warning").

Furthermore, if a combination of certain events tends to occur at the same time due to the nature of the events, broader terms are quite often used as a catch all for the individual events (i.e. a "wind" event, plus a "rain" event, plus a "storm surge" event all leading to a "tropical storm" alert). From any one physical location affected by all the individual events, using "tropical storm" makes sense as a catch all, but for a segment of the audience affected by only a subset of the events, such as those on higher ground, should they be subjected to the "storm surge" aspect of the catch all alert type?

The example below shows a simple example of "Wind". There may be many broad to narrow spectrums that include the term wind, but for this discussion the spectrum that includes the CAP category "Met" is used.



An authority could elect to use the broad event term "weather" or the narrow term "small craft wind" when naming an event. For example, the following combination of CAP elements is possible

<event> = "weather"
<category> = "Met"

as well as…

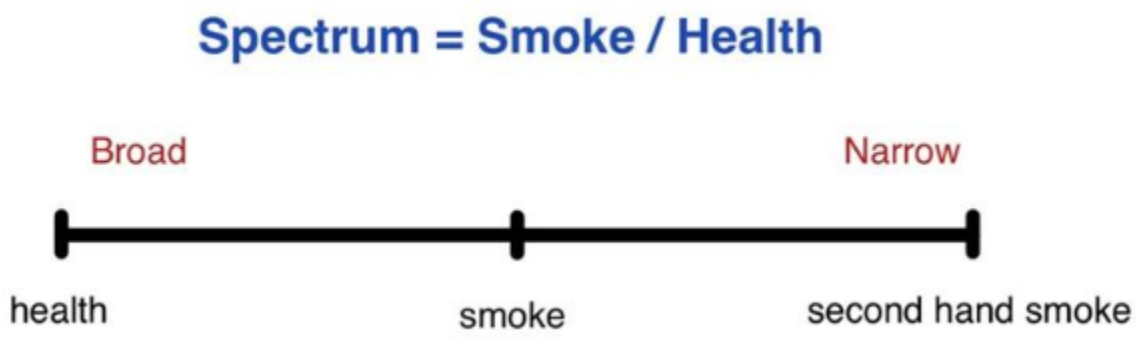
<event> = “wind”
<category> = “Met”

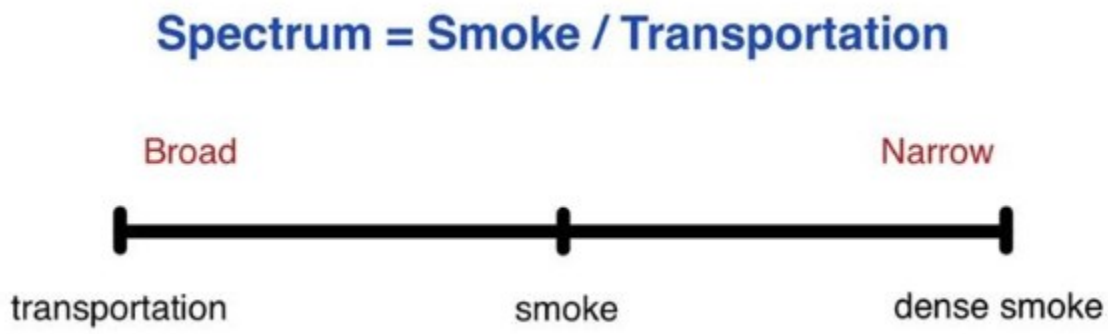
or even…

<event> = “small craft wind”
<category> = “Met”

and so on.

Additionally, reference terms can appear on more than one broad to narrow spectrum. This is one area where the <category> discussion above is relevant. For example, using the “smoke” example from earlier, smoke is a broad term that one can narrow to either “dense smoke”, affecting Transportation, or “second hand smoke”, affecting Air Quality and Health.





The impacts of a smoke event could be associated to two different CAP <category> values, “Health” and “Transport”. In this case, the broad term would need more context if there is a consumer that wants to filter for alert messages in just one of either category.

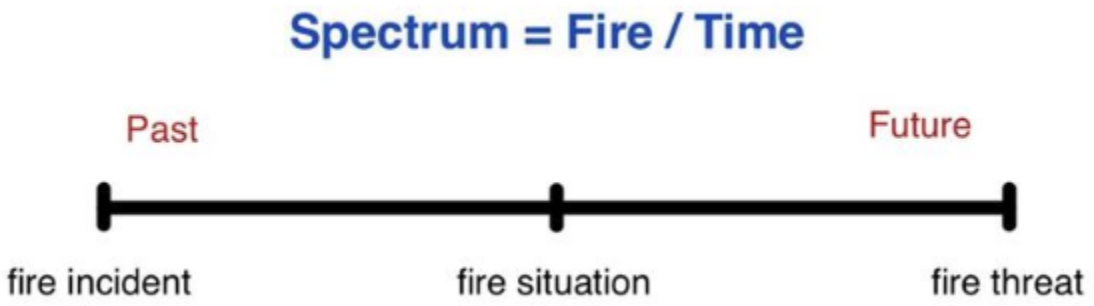
Furthermore, if the “dense smoke” is from a chemical fire, and the alerting authority is issuing an alert for this smoke with both the Health and Transport communities in mind, do they issue two messages or one? Do they issue a general alert message discussing both impacts or two alert messages discussing the impacts in each category separately knowing there is an specific audience for each category? Practices are many and varied and often go to how the authority conveys the impacts in the message. OASIS has no

jurisdiction over such alerting practices leaving that up to the authorities themselves, but the practices affect the terms used.

3.2 Past, Present and Future Spectrum

Alerts can be used to alert audiences to events of interest that have happened, are presently happening, or are expected to happen in the future. If an event is moving, such as a “storm”, it can be considered happening now to some and happening in the future to others. Furthermore, if an event is only anticipated to happen, it may end up not happening if the conditions leading up to the event change before the event happens. All this can affect the chosen terms used to describe an event across the time spectrum.

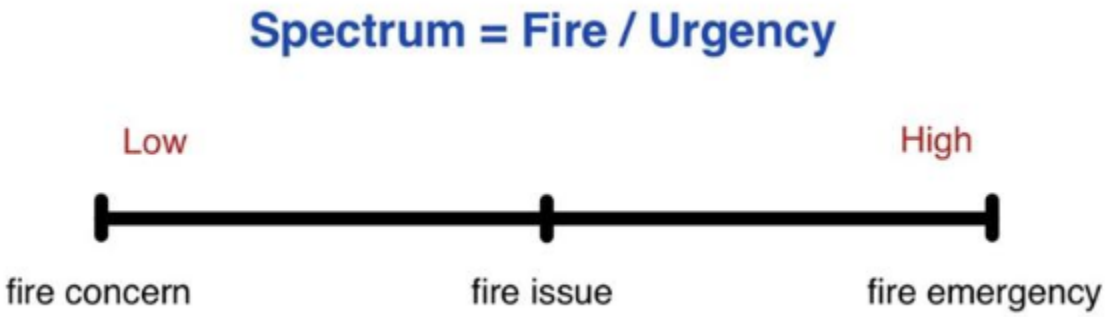
Consider for a moment a term like “forest fire”. Since a forest fire is an event by its nature, something that deviates from the normal condition of no fire, the term “forest fire” is an acceptable event type term. However, if an authority wants to define forest fires types for existing forest fires and future forest fires, how is that accomplished? Terms such as “forest fire situation” or “forest fire threat” come to mind, along with many others similar terms. When inspecting these choice of terms however, a sense of timing can be inferred by the additional qualifying term. The term “situation” suggests a current event and the term “threat” suggests a future event. For completeness, an example of an additional qualifying term representing the past could be “incident”.



Another observation about terms like…threat, situation and incident, is that they themselves can also be considered a thing of interest. They are abstract things as opposed to real things, but they can be a subject event of a message (i.e. a message that says “we have a threat”). They can be “typed” (i.e. a threat of type “forest fire”), and they do convey a sense that something is happening that is a deviation from the normal state, so they can also be classified as events. NOTE: As a language construct, the term “forest fire threat” is made up of the noun “threat” and a noun adjunct “forest fire”. A noun adjunct is also a noun, but has been related to adjunct status by its usage as a qualifier. A noun adjunct is not the subject or object of a sentence.

3.3 Urgency Spectrum

Alerts can be used to alert audiences to events of interest that are minor, major, or anywhere in between. If an additional qualifying term is used for an event term that infers an urgency, such as “concern”, “problem”, “issue”, “warning”, “emergency”, etc… there is an urgency based qualifying term present.



Another observation about urgency based qualifying terms is that they themselves can also be considered a thing of interest and can be typed. Just like past, present and future qualifying terms, they are nouns and the same interpretation applies.

NOTE: the CAP-XML standard already has an element that handles urgency. The <urgency> element is to help consuming systems process the alert message when there is a need to present the message differently based on the <urgency> setting. The <urgency> value is meant for automated systems and is not initially meant for the final audience. Any sense of urgency for the final audience should be handled in the <headline> or <discussion> elements, but since the <event> element is also meant for the final audience, many alerting authorities have chosen to add urgency based qualifying terms there.

3.4 Intersecting Spectrums

The intersection of spectrums becomes important only when trying to compare terms from across spectrums. For example, if one alert message uses an event term that includes a time qualifying term at the narrow end of the broad to narrow spectrum, and another alert message includes an urgency qualifying term at the broad end of the broad to narrow spectrum, how difficult is it for automated systems to relate the two terms when they should be related (i.e. an event term like “weather threat” as compared to “hurricane emergency”).

Furthermore, there are cases where individual event terms incorporate two spectrum terms (i.e. “fire threat emergency”), or incorporate an abstract term on its own (i.e. “emergency”). When this occurs, the terms used are very difficult to compare with other terms. Again, OASIS has no jurisdiction over such alerting practices leaving that up to the authorities themselves, but the varied practices do result in a wide range of terms used making comparisons difficult.

4 Spectrum Concept

Keeping all of the discussions in mind, a sub-committee of the EMTC has attempted to compile a reference list of subject event type terms that alerting authorities and originators can use or reference in CAP alert messages. The concept of terms being part of a spectra of terms was established as it factors into the ongoing task of processing and managing new terms over time. Users of the list will not necessarily have to be familiar with this spectrum concept, but it will help. Contributors to the list however will have a better understanding of how their submission is being treated if they understand the spectrum concept.

A spectrum, in the context used here, where a grouping of terms is brought together under one defined range, provides a means of comparing terms. With that, a number of spectrum concepts arise and are introduced here and discussed below.

4.1 Related terms

For every event term, there are other related event terms that others may feel are better terms to use. This is of course a matter of opinion but in a spectrum approach, the EMTC can show a given term as relatable to other terms, even across the different spectrums the term is a part of. If a reference term falls onto one or more broad to narrow spectrums, all terms on those spectra are considered related terms.

4.2 Narrow terms

How narrow (or specific) do event terms need to be? For example, a term for every intensity rating on the Enhanced Fujita Scale (EF0 tornado to EF5 tornado), each based on the likely damage expected with a tornado event, could arguably help consumers better deliver alert messages to their audiences. If an <eventCode> existed for each narrow term, the audience experience could be enhanced as the narrower term increases the precision of the message.

In the example given, the term is actually the code itself (i.e. “EF0”). However, for other scales, such as a marine scale for wind speeds where a qualifying term is used (i.e. small craft wind = 15-19 knots, strong wind = 20-33 knots, gales = 34-47 knots, etc…), the discussion remains relevant.

In such cases however, it is usually only smaller subset audiences that have a need for such specificity. The EMTC purposely does not venture into the very narrow edge of the spectrum feeling that the general public would be better served, as with the first example, by the event term “tornado”, or in the second example, by the event term “wind”. For those looking for more specificity of scale, the “Other Lists” section below offers up a complimentary solution that CAP easily accommodates.

4.3 Terms vs. Preferred terms

Preferred terms, within a spectrum of terms, is a matter of opinion. The EMTC will not concern itself with choosing a preferred term. Alerting authorities are free to choose their preferred term when considering their audiences. The list however makes it possible to compare the terms used with other terms preferred by other authorities.

4.4 Other language terms

Other language terms are considered to be in the same spectrum. Spectrums are language independent. If a term is used in one identified language, and it has an equivalent term in another identified language, it is a related term. Filters by language can be used to when working in one language (viewing the list), or when using the list to translate from one language to another (processing CAP with the help of the list).

4.5 Other Lists

CAP has the facility to house term references from more than one list in any single CAP message. The <eventCode> element is a multi-instanced element in CAP, specifically defined to allow for codes from many different lists to be simultaneously incorporated into a message. For that reason, the EMTC has decided not to include terms and codes based on preferences or specificity of scale, leaving that exercise up to sub-communities of users to define their own list.

Any such community is welcome to define and publish additional event term codes. Those additional codes, if necessary, can easily cover the narrow edge of the broad to narrow spectrum. For an alert message that goes out to a multitude of consumers, serving both specific and general audiences, an additional event code could convey the preferred or specific details to subset audiences and the EMTC code could convey general details to general audiences.

5 Event Terms List

As mentioned in the outset, the EMTC has developed a list of “event” terms for use in alert messaging systems. There was no shortage of challenges with this initiative. Determining how to build and structure the list first meant understanding the bulk of the problems the list was intended to solve. Also, stewards of the list, as well as users of the list, would each have their own objectives when working with the list. Furthermore, how to apply and present the list afterwards to all users was also difficult since many existing alerting practices are already underway and had to be accommodated for in the methods chosen.

For users, the EMTC list was developed to be open-ended. An open-ended approach is considered evergreen – the resulting material retains its relevance by growing continuously to meet the needs of a community. For the sub-committee, managing an open-ended reference list, where new terms can be submitted over time, is possible, but only when a solid process for upkeep is established. This is possible with the concept of spectrums.

Secondly, strategies such as a thesaurus approach emerge. With a thesaurus approach, each term is related to other similar terms and by selecting one term, other similar or related terms can be found using the various spectra the term can be found in. The thesaurus then leads the user down a path where the user can choose for themselves the best term as they deem appropriate for the situation. Through the spectrum approach, the EMTC will be able to list related terms for any given reference term when using a thesaurus.

For consumers of CAP, the <event> element is free form, and consumer systems should already be accepting free form values for this element. The terms in the EMTC list should not require any refactoring in those consuming systems if those terms appear in CAP messages. This of course assumes consumers use the <event> element for what it was intended – as a display element only.

Secondly, for consumers that want more – that want the ability to auto-process and compare event types across systems and platforms – the EMTC is suggesting an alternative procedure requiring the cooperation of CAP originators and consumers alike. The EMTC is asking originators to populate one instance of the <eventCode> element with a code value from the list – the value that most closely represents the event type used by the alerting authority. For example, if the alerting authority has an established event term that closely mirrors an EMTC term, the following should be placed into any associated CAP message file.

```
<eventCode>
        <valueName>OET:v1.0</valueName>”
        <value>OET-537</value> --a coded value for the closest EMTC event term
</eventCode>
```

If a term does not closely resemble any EMTC term, then following is requested.

```
<eventCode>
        <valueName>OET:v1.0</valueName>”
        <value>OET-000</value> --a coded value for the EMTC event term “other event”
</eventCode>
```

For alerting authorities, if one does not already have their own list, one may freely use the terms from the EMTC list. If one already has their own event terms list, the EMTC requests a mapping of those terms to equivalent terms in the EMTC list by the CAP originator when generating an alert message (as exampled above). The sub-committee will periodically expand the list and release updated versions.

Secondly, the EMTC is also asking authorities to submit terms for inclusion into the list. As mentioned, the sub-committee will periodically expand the list but will only do so acting as a custodian for the list rather than the subject matter experts for the terms on the list. If there is a situation where the “other issue” coded value is used in a CAP alert message, then the event type used in that message is a candidate for inclusion on the EMTC list going forward.

5.1 Submitted Event Terms

The following is the general procedure used when considering a new term for inclusion into the list.

- An event term to be supplied by an interested party
- The event term to be associated to one or more CAP categories by the interested party (to set the broad edge of the spectra of interest)
- An assessment of whether it truly is an event term or not
- A confirmation of whether it truly fits the Spectrum or not
- Once accepted the term will be added to the list
    - It will be roughly ordered within the indicated broad to narrow spectra
    - It will be assigned a new EMTC event terms code if it has no sibling term
    - It will be assigned an existing EMTC event terms code if it has a sibling term
- All other terms in the associated spectra will be considered related terms
- Suggestions for other language terms will be accepted and added
    - Equivalent other language terms will be considered sibling terms

The sub-committee will only review the terms as indicated above. For that, we need the help of the submitting agency - either the alerting authority itself or an agency on behalf of an alerting authority.

5.2 What Event Terms OASIS Will Accept?

The list below demonstrates what OASIS will accept…

1) event terms that convey a sense of time and space.
2) event terms that fall within a broad to narrow spectra of terms.
3) multiple event terms in different languages for a single event type.
4) event terms that are used to service multiple user communities, regardless of the number of authorities it affects.
5) event terms that are regional event terms (i.e. “monsoon”).
6) event terms that are proxy terms (i.e. “AMBER Alert”), if the proxy term is well associated to an event type.

7) event terms that are multi-word terms (i.e. “falling rock”) where the multi-words are needed to convey the concept of an event.
8) event terms that collectively subsume a number of smaller events (i.e. “tropical storm” which may subsume “wind”, “rain”, “high seas”, “flood”, etc…).
9) event terms that are secondary event terms when the secondary event is truly the subject event (e.g., “boil water advisory”, “evacuation order” or “AMBER alert”). The secondary event is what the alerting authority is truly directing the attention of the audience (for AMBER Alert, that secondary event is the search for the missing child, as opposed to the original abduction event that triggered the AMBER Alert).
10) new mappings to related terms (i.e., adding terms to other spectrums).

5.3 What event terms OASIS will not accept?

The list below is not a complete list of ideas applicable to the process of not accepting event terms, as new ideas may emerge, but the list does demonstrate what OASIS will not accept…

1) terms not associated to an event (i.e., “terrorism).

The term “terrorism” is not associated to an event, it is an ideology. It could however be associated to an event with an additional qualifying term that convey a sense of time and space, such as “active terrorism”. Regardless of whether such terms are good terms to use or not, the additional word in the examples creates the notion of possible event type. NOTE: “terrorist incident” is in the event terms list as an event type, not the ideological concept. NOTE: This explanation is not necessarily directly applicable in all languages however the intent still applies.

2) terms that are actually alert terms (i.e. “thunderstorm warning”).

The term “thunderstorm warning” is actually a secondary event term. It is a term that refers to the act of issuing a warning, not the real or anticipated presence of a thunderstorm event. Such secondary events are not what the CAP elements, <severity>, <onset>, etc. were all created address. In this case, the term “thunderstorm” will suffice. EXCEPTION: Some alert terms are actually adopted as a way to describe secondary events where the secondary event is truly the subject event (i.e. AMBER Alert). The term AMBER Alert was chosen to represent the secondary event of a “coordinated child search”. The term AMBER Alert was adopted to use the term alert to heighten the awareness of the secondary event. Over time, it has become a well-known term associated to that secondary event. It has effectively taken on a meaning of more than just what the term on its own suggests and therefore is an acceptable event type term.

3) terms that are multi-word terms that use a subjective qualifier that only try to classify an event by scale rather than distinguish the event from another event by its nature (i.e., “gale force winds” and “hurricane force winds” are derived terms based on a level marker). However, terms like “chemical fire” and “forest fire” would each be accepted separately as the nature of the two events are quite different. Therefore, the terms “gale force wind” and “hurricane force wind” are considered too narrow for the OASIS event terms list, but the term “wind” is acceptable. NOTE: Communities, such as marine based communities, are

welcome to establish a set of terms and codes for scale based terms with the recommendation that the terms be mapped to the closest OASIS term (and associated event code), and include a reference to the OASIS event code in one instance of the multi-instanced CAP <eventCode> element.

4) terms that are multi-word terms where the subjective qualifier is scale based but not necessarily tied to a known level marker from the perspective of the intended audience. For example, “severe thunderstorm”, which has an implied level marker based on the word “severe” but by its use only implies an event more hazardous than normal”. Therefore, the term “severe thunderstorm” is considered too narrow for the OASIS event terms list, but the term “thunderstorm” is acceptable. NOTE: Communities, such as meteorological based communities, are welcome to establish a set of terms and codes for scale based terms with the recommendation that the terms be mapped to the closest OASIS term (and associated event code), and include a reference to the OASIS event code in one instance of the multi-instanced CAP <eventCode> element.
5) accept proxy terms that are otherwise not event terms (i.e., “Red”).

Red is not an event on its own, it is a quality. “Red” may be used by the authority in the <headline>, <description>, <parameter> or other elements as an alerting authority based preferred term but as an event these terms do not convey the idea of an event. Multi-word terms that try to make an event out of a proxy event (i.e., “red event”) are also not accepted. Turning the proxy event into an event in this manner provides no context to the term event.

Appendix A. Acknowledgments

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Appendix B. OASIS Event Terms

The OASIS event *code* value is for use in the cap.alertInfo.eventCode.value element

Note: “OET” represents “OASIS Event Term”

The version of the OASIS Event Terms list that the OASIS event code is taken from is indicated in the cap.alertInfo.eventCode.valueName element.

Note: It is of the form "OET:*m.n*", where "*m.n*" is the major.minor version of this document.

The OASIS event *term* is for use in the cap.alertInfo.event element

Note: The OASIS Event Term is supporting material for comparison purposes and for systems that have no Event term list.

The "Grouping" column is used to indicate other CAP Event terms which are related.

Note: Most often, the grouping term is a broad grouping term on the broad to narrow spectrum, where the term on the row is a more specific term on the same spectrum. The Grouping term can lead to other related terms if the given Event term "doesn't quite fit" the situation.

The CAP Category Code(s) value is for use in the cap.alertInfo.category element

Note: The "CAP Category Code(s)" column, lists the known CAP Categories the OASIS Event term is associated, and OASIS recommends all values listed should be included in the multi-instanced cap.alertInfo.category element in a CAP message.

699

OASIS Event Code	OASIS CAP Event Term	Grouping	CAP Category Code(s)
OET-000	other event	other	Other
OET-001	active shooter situation	criminal activity	Safety; Security
OET-002	administrative activity	testing & system activity	Other
OET-003	air hazard	aviation hazard	Meteorological; Transport
OET-004	air quality	health hazard	Environmental; Health
OET-005	air search	safety hazard	Meteorological
OET-006	air stagnation	air hazard	Meteorological
OET-007	aircraft crash	aviation hazard	Transport
OET-008	aircraft incident	aviation hazard	Transport
OET-009	airport closure	aviation hazard	Transport
OET-010	airspace closure	aviation hazard	Transport
OET-011	airspace restriction	aviation hazard	Transport
OET-012	ambulance	health issue	Health
OET-013	animal disease	health issue	Health
OET-014	animal feed	health issue	Health
OET-015	animal health	health issue	Health
OET-016	arctic outflow	temperature hazard	Meteorological
OET-017	ashfall	air hazard; marine; aviation	Geological; Health; Meteorological; Safety; Transport
OET-018	avalanche		Geological
OET-019	aviation hazard	aviation hazard	Transport
OET-020	aviation security	aviation hazard	Transport; Security
OET-021	beach hazard	marine	Safety
OET-022	biological	biological hazard	CBRNE
OET-023	blizzard	winter weather	Meteorological
OET-024	blood supply	health issue	Health
OET-025	blowing dust	air hazard	Meteorological
OET-026	blowing snow	winter weather	Meteorological
OET-027	blue-green algae	water hazard	Environmental

OASIS Event Code	OASIS CAP Event Term	Grouping	CAP Category Code(s)
OET-028	bomb threat	criminal activity	CBRNE
OET-029	bridge closure	road hazard	Transport
OET-030	bridge collapse	road hazard	Transport
OET-031	building collapse	infrastructure issue	Infrastructure
OET-032	building structure hazard	earthquake	Geological
OET-033	bush fire	fire	Fire
OET-034	cable service issue	utility issue	Infrastructure
OET-035	canal	utility issue	Infrastructure
OET-036	chemical fire	fire	CBRNE; Fire
OET-037	chemical hazard		CBRNE
OET-038	child abduction	criminal activity	Safety; Security
OET-039	civil	civil issue	Security
OET-040	civil protest	civil issue	Safety
OET-041	coal gas	utility issue	Infrastructure
OET-042	coastal flood	flood	Meteorological
OET-043	cold	temperature hazard	Meteorological
OET-044	cold weather	winter weather	Meteorological
OET-045	communications service disruption	utility issue	Infrastructure
OET-046	contagious disease	health hazard	Health
OET-047	contaminated water	health hazard	Health
OET-048	contamination		CBRNE; Health
OET-049	criminal activity	criminal activity	Safety
OET-050	cybercrime threat	criminal activity	Safety; Security
OET-051	cyclone	tropical storm	Meteorological
OET-052	dam break	flood	Geological; Meteorological
OET-053	dam issue	infrastructure issue	Infrastructure
OET-054	dangerous animal	civil issue	Safety
OET-055	dangerous person threat	criminal activity	Safety
OET-056	debris flow	geophysical	Geological
OET-057	demonstration	testing & system activity	Other

OASIS Event Code	OASIS CAP Event Term	Grouping	CAP Category Code(s)
OET-058	dense fog	air hazard	Meteorological
OET-059	dense smoke	air hazard	Meteorological
OET-060	diesel fuel issue	utility issue	Infrastructure
OET-061	disease	health issue	Health
OET-062	disease outbreak	health issue	Health
OET-063	drought	weather	Meteorological
OET-064	drug safety	public health	Health
OET-065	drug supply	public health	Health
OET-066	dust storm	air hazard	Meteorological
OET-067	dyke break	flood	Meteorological
OET-068	earthquake	earthquake	Geological
OET-069	electronic infrastructure	infrastructure issue	Infrastructure
OET-070	emergency responder incident	criminal activity	Safety
OET-071	emergency responder threat	criminal activity	Safety
OET-072	emergency support facilities incident	infrastructure issue	Infrastructure
OET-073	emergency support services incident	infrastructure issue	Infrastructure
OET-074	emergency telephone outage	infrastructure issue	Infrastructure
OET-075	environmental issue	environment	Environmental
OET-076	explosion threat	civil issue	CBRNE
OET-077	falling object	safety hazard	Safety
OET-078	fire	fire	Fire
OET-079	flash flood	flood	Meteorological
OET-080	flash freeze	winter weather	Meteorological
OET-081	flood	flood	Meteorological
OET-082	fog	air hazard; winter weather	Meteorological
OET-083	food contamination	biological hazard	Health
OET-084	food safety	public health	Health
OET-085	food supply	public health	Health
OET-086	forest fire	fire	Fire

OASIS Event Code	OASIS CAP Event Term	Grouping	CAP Category Code(s)
OET-087	freeze	winter weather	Meteorological
OET-088	freezing drizzle	winter weather	Meteorological
OET-089	freezing rain	winter weather	Meteorological
OET-090	freezing spray	winter weather; marine	Meteorological
OET-091	frost	winter weather	Meteorological
OET-092	fuel issue	utility issue	Infrastructure
OET-093	geophysical issue	geological	Geological
OET-094	grass fire	fire	Fire
OET-095	hail	severe weather	Meteorological
OET-096	hazardous seas	marine	Transport
OET-097	health issue	health issue	Health
OET-098	heat	temperature hazard	Meteorological
OET-099	heating oil issue	utility issue	Infrastructure
OET-100	high seas	marine	Meteorological
OET-101	high surf	marine	Meteorological
OET-102	high tide	marine	Transport
OET-103	high water	utility issue; marine	Infrastructure; Transport
OET-104	home crime	criminal activity	Safety
OET-105	humidity issue	temperature hazard	Meteorological
OET-106	hurricane	tropical storm; tropical cyclone	Meteorological
OET-107	ice	winter weather	Meteorological
OET-108	ice pressure issue	ice issue	Meteorological
OET-109	ice storm	winter weather	Meteorological
OET-110	iceberg	ice issue	Meteorological
OET-111	industrial crime	criminal activity	Safety
OET-112	industrial facility	safety hazard	Safety
OET-113	industrial fire	fire	Fire
OET-114	infrastructure	infrastructure	Infrastructure
OET-115	internet service	utility issue	Infrastructure
OET-116	lake effect snow	winter weather	Meteorological

OASIS Event Code	OASIS CAP Event Term	Grouping	CAP Category Code(s)
OET-117	lake wind	air hazard	Meteorological
OET-118	landline service	utility issue	Infrastructure
OET-119	landslide	geophysical	Geological
OET-120	law enforcement	civil issue	Security
OET-121	levee break	flood	Meteorological
OET-122	lightning	thunderstorm; severe weather	Meteorological
OET-123	limited visibility	air hazard	Transport
OET-124	low tide	marine	Transport
OET-125	low water	utility issue; marine	Infrastructure; Transport
OET-126	low water pressure	utility issue	Infrastructure
OET-127	meteoroid	space	Transport
OET-128	meteorological issue	meteorological	Meteorological
OET-129	missile threat	national hazard	CBRNE
OET-130	missing person(s)	safety hazard	Safety
OET-131	mobile communication	utility issue	Infrastructure
OET-132	monsoon	weather	Meteorological
OET-133	mudslide	geophysical	Geological
OET-134	natural gas	utility issue	Infrastructure
OET-135	network message notification	testing & system activity	Other
OET-136	nuclear power plant	infrastructure issue	Infrastructure; CBRNE
OET-137	oil leak	beach hazard, environmental	Environmental
OET-138	oil spill	beach hazard, environmental	Environmental
OET-139	over water search	search	Rescue
OET-140	overland flood	flood	Meteorological
OET-141	overland search	search	Rescue
OET-142	pipeline rupture	utility issue	Infrastructure
OET-143	plant health issue	health issue	Health
OET-144	potable water	utility issue; water hazard	Infrastructure
OET-145	power outage	infrastructure issue	Infrastructure

OASIS Event Code	OASIS CAP Event Term	Grouping	CAP Category Code(s)
OET-146	power utility	utility issue	Infrastructure
OET-147	practice	testing & system activity	Other
OET-148	product safety	safety hazard	Safety
OET-149	public facility	infrastructure issue	Infrastructure
OET-150	public health	health issue	Health
OET-151	public service issue	infrastructure issue	Infrastructure
OET-152	public transit issue	infrastructure issue	Transport
OET-153	pyroclastic flow	volcano hazard	Geological
OET-154	radiation	radiological hazard	CBRNE
OET-155	radio transmitter	safety hazard	Infrastructure
OET-156	radioactive material release	radiological hazard	CBRNE
OET-157	radiological fire	fire	CBRNE; Fire
OET-158	railway issue	infrastructure issue	Transport
OET-159	rain	weather	Meteorological
OET-160	rapid ice closing of water passage	ice issue	Transport
OET-161	red tide	health issue; marine issue	Health
OET-162	rescue	rescue	Rescue
OET-163	retail crime issue	criminal activity	Safety
OET-164	rip current issue	beach hazard	Safety
OET-165	road closure	road hazard	Transport
OET-166	road issue	road hazard	Transport
OET-167	road vehicle accident	road hazard	Transport
OET-168	rogue waves	marine	Geological
OET-169	safety	safety hazard	Safety
OET-170	sandstorm	air hazard; weather	Meteorological
OET-171	satellite debris	space	Other
OET-172	satellite service	utility issue	Infrastructure
OET-173	school bus issue	infrastructure issue	Transport
OET-174	school closing	infrastructure issue	Infrastructure
OET-175	school lockdown	infrastructure issue	Infrastructure

OASIS Event Code	OASIS CAP Event Term	Grouping	CAP Category Code(s)
OET-176	search event	search	Rescue
OET-177	security	security	Security
OET-178	sewer	utility issue	Infrastructure
OET-179	shoreline threat	beach hazard	Safety
OET-180	sinkhole	safety hazard	Safety
OET-181	sleet	winter weather	Meteorological
OET-182	snow	winter weather	Meteorological
OET-183	snowstorm	weather	Meteorological
OET-184	space debris	space	Other
OET-185	space weather	space	Other
OET-186	squall	weather; marine	Meteorological
OET-187	storm	weather; marine	Meteorological
OET-188	storm drain	utility issue	Infrastructure
OET-189	storm surge	weather; flood	Meteorological
OET-190	structure fire	fire	Fire
OET-191	swells	marine	Safety; Transport
OET-192	telephone	utility issue	Infrastructure
OET-193	terrorist incident	criminal activity	Safety
OET-194	thunderstorm	weather	Meteorological
OET-195	tornadic waterspout	severe weather	Meteorological
OET-196	tornado	severe weather; tornado	Meteorological
OET-197	toxic plume	contamination hazard	CBRNE
OET-198	toxic spill	contamination hazard	CBRNE
OET-199	traffic	road hazard	Transport
OET-200	transportation	transport	Transport
OET-201	tropical depression	tropical storm; tropical cyclone	Meteorological
OET-202	tropical storm	weather; tropical cyclone	Meteorological
OET-203	tsunami	marine	Geological
OET-204	typhoon	tropical cyclone	Meteorological
OET-205	ultraviolet	safety	Safety

OASIS Event Code	OASIS CAP Event Term	Grouping	CAP Category Code(s)
OET-206	utility	utility issue	Infrastructure
OET-207	vehicle crime	criminal activity	Safety
OET-208	volcanic activity	volcano hazard	Geological
OET-209	volcanic eruption	volcano hazard	Geological
OET-210	volcanic lahar	volcano hazard	Geological
OET-211	volcanic lava	volcano hazard	Geological
OET-212	waste management	utility issue	Infrastructure
OET-213	water	utility issue; water hazard	Geological; Transport
OET-214	water main break	utility issue; water hazard	Infrastructure
OET-215	waterspout	marine	Meteorological
OET-216	weather	weather	Meteorological
OET-217	wildfire	fire	Fire
OET-218	wind	air hazard	Meteorological
OET-219	wind change	air hazard	Meteorological
OET-220	wind chill	temperature hazard	Meteorological
OET-221	wind shear	air hazard	Meteorological
OET-222	winter storm	winter weather	Meteorological
OET-223	winter weather	weather	Meteorological

700

Appendix C. Revision History

Revision	Date	Editor	Changes Made
02	09-23-2020	Scott Robertson	Appendix A Acknowledgments added Appendix B Event Terms. added Appendix C Revision History added First Complete Draft
03	10-28-2020	Rex Brooks	First Complete Edited Draft