**Leveraging Live Feeds for Situational Awareness**

[MUSIC PLAYING]

CHRIS MCINTOSH: Good morning and welcome to the second in Esri's Emergency Management webinar series. My name's Chris McIntosh. I'm the Emergency Management Industry Manager here at Esri, and I'm joined by my colleagues, Jeff Baranyi and Kevin Armstrong, who are going to walk through the way that we use live feeds for situational awareness with ArcGIS Online.

So today we're going to go through the agenda. We're going to talk about the purpose of this webinar series, sources of live feeds through Online, the user communities, partners, and how you can use local feeds to augment your situational awareness. And then Kevin's going to actually walk through using a really current and relevant scenario, how to build a web map and configure Ops Dashboard, use presentation mode of ArcGIS online and finally configuring that in a Story Map Journal. We'll touch a little bit on real time alerting and notification and then talk about how we can go forward with the information that we've gained through this series.

So the purpose of these webinars is to provide you, the community, updates on how to use ArcGIS to support emergency management and disaster response. The public safety team here at Esri is constantly supporting areas that are experiencing disasters. And through that, we learn.

We learn new best practices. We learn new ways of leveraging the technologies that are available. And we also learn areas that the technology needs to grow. And we are constantly working on developing new solutions, new templates, and new applications for emergency managers so that you can use the latest and greatest that's out there.

We're going to do these webcasts the first Thursday hopefully of every month. And our next one will be on November 5th, preparing for winter weather, and that's winter weather which varies in different parts of the country. Out in California, we're looking at an el Nino condition setting up and then in the eastern part of country to more traditional winter conditions.

Some of them will be broad overviews. Today we're going to go in-depth into a certain area of apps and templates. We'll provide some updates from the Disaster Response Program and Special Events Programs, which are constantly out there doing things. And then if you have an idea of something you would like to see in the future, please let us know. So today Leveraging Live Feeds for Situational Awareness, which I think is really important for response in the 21st century.

Now back when I was in operations and emergency management, the dream was to have live information and have that information called out to me. Let me know when something was happening that I needed to be aware of. We see a lot of maps out there with a lot of stuff on them. But how do you as a decision-maker or an operator have your attention drawn to the map to let you know when something is happening so that you need to pay attention to it and potentially initiate response activities?

Here at Esri, we've developed something really quickly where we keep an eye on our Esri facilities across the country. We have offices all over the place. And you can see here they're called out with the word "Esri."

And we want to know when something's potentially going to affect one of those buildings. So I'm not looking at this all day, every day. I'm just looking at that number down there in the bottom left corner.

And this is where live feeds become important. Don't show me everything. Show me when I need to know something.

So right now I know that we have 29 alerts affecting an Esri facility. And I can dive into those once I'm aware of that. So live feeds, the fact that they're always current, it's always showing you the latest information and using those with some basic analytics to apply them to your area of responsibility, the citizens that you're responsible for, the facilities you're responsible for is situational awareness.

It's not everything. It's show me what I need to know. So we're going to walk through how to build some things like this so that we can transition from a world of static maps to dynamic situational awareness.

JEFF BARANYI: Great. Well, thanks, Chris, for that introduction. And what we want to do now is kind of give you a tour of some of the resources and feeds that are out there and available to you. So the first set of feeds we want to talk about are actually things that come with ArcGIS Online, so the Living Atlas indexes some of these feeds. And that's a great place to go and search for things that you can use to augment your own applications.

So, for example, how to get started and how to add some of this content to your own web maps is simply go into the Add Dialog, browse the Living Atlas layers, and either search the Earth Observations category or simply type in the tag Live Feeds. And you'll see some of the feeds that are indexed and available to you as a part of ArcGIS Online that you can add directly to your maps to start to build and put together that application that Chris talked about at the beginning and why that's so important. So to get started this morning, I just want to kind of provide you a survey of what some of these things look like. And then Kevin will actually get in and demonstrate how you can get that you actually do this on your own in your own jurisdiction, in your own organization, to be able to put together maps like this that may be more customized, or not customized but configured, zoomed into your particular region of interest.

So another place where we register and inventory this content is on our own Esri Disaster Response Program ArcGIS Online site. So if you notice the Live Feed section down at the bottom right to that map or at this page of disasterresponse.maps at arcgis.com, it'll just pop open a group where we've indexed a lot of the content that's available for ArcGIS Online in the Living Atlas. So what we're looking at here, this would be a key link for you. And we'll send this out in the after webcast information. You'll have this link so you can be able to browse this at your leisure and be able to pick out what you're looking for and be able to add that to your map.

So one of the feeds that we wanted to highlight is the current wind and weather conditions layer. So this comes from the METAR weather stations throughout the globe. In this case, with a default rendering to set up to show wind speed and direction, it gives you a sense of some of the patterns across the world or your region. But there's actually more details on temperature, visibility, that type of thing so these are one of the key feeds that's available in this collection.

A Storm Report, that's another key layer. And here we're looking at some of the tornado reports in South Carolina from last Friday. So we see things like hail reports, storm reports, that type of thing. Those are all available on the map. Obviously, seasonally these may vary as different conditions change across the US.

Obviously, unfortunately, something that's very germane today is active hurricanes and tropical cyclones. So, again, this is a global feed, not only US-focused but also incorporates data from the Joint Typhoon Warning Center to give us information across the globe on where tropical cyclones and hurricanes are. And so this is a screen snapshot of Joaquin obviously. This is the most current information from this morning.

This is always updated as a part of the live feeds process. And we're looking at the current track, currently a category 3, headed up the coast of the US. So as the information changes behind the scenes, these live feeds are always updated with the most current and up-to-date information so you can add these in. So, yeah, unfortunately, very ironic timing for this webcast this morning with Hurricane Joaquin bearing down on the East Coast of the United States.

Another key feed is wildfire information. So we have both the point locations from the situation reports as well as perimeters. And this is provided to us through the wildfire community and the GeoMAC system. Also in conjunction with that, we have global hot spot data from MODIS heat detection so, again, more sources of information that you can add into your web applications for situational awareness purposes.

Next, we've got earthquakes. So this is something that we've recently updated. So as the USGS has updated and leveraged their pager system more to give us more kind of context to different earthquakes that we may need to pay attention to based on population and other data, we've brought that in and updated this feed recently to leverage that new system.

We also have the ShakeMap information that's provided, just to give us a sense of the magnitude of shaking. And one way that we have set this up is to always display the most current-- or excuse me-- the most significant level of shaking on top. So if there's many aftershocks as there were in the Chile earthquake as we're showing here, the most intense areas of shaking will always show on top, based on some rendering settings in this particular layer. So, again, this is a global feed available throughout the world, and there's several different ways that you can view and look at the information that's provided here.

We also have stream gauges so it shows the current level and flood stage for the stream gauges. At this point, this information is only available for the US. But the Living Atlas content team is looking to work with others to add in other sources of information, either locally or across the globe, to continue to augment this feed, to have other and more detailed coverage and not only the US but throughout the world so, again, another key data layer.

Also it's not just natural phenomena like we've talked about with some of the hazards. Another key feed is the traffic feed here. This is provided by HERE, and we can always get a sense of the traffic conditions. This is, again, another global layer. And we can see in this case from this screen snapshot some of the congestion in New York City so another great data layer to add into to your arsenal.

These are some things that I just discovered recently that are, oh, by the way, just part of the collection. So there's some great sources of imagery that are also provided. So we get the most current snapshots from MODIS from both the Aqua and Terra sensors to give us a current snapshot of what the true color resolution or true color imagery looks like across the globe. This is also a time-enabled service so you can go back and look at specific points in time to see smoke from a large wildfire or sandstorm. So this is another great data layer that's available to you to be able to us get a sense of the most current imagery from MODIS.

Also Landsat data is also provided. This is the most recent imagery over the past 16 days. So it won't necessarily show you what happened to you yesterday, but it's the most current imagery that's available from Landsat.

This is provided as an image service. And you can go in and change the draw order priority so you can see the most recent image on top instead of the clearest image that is available here. So one of the things that we're showing here is some of the Landsat imagery near one of the recent wildfires in California. You can see some of the burn scars that are showing up here, based on some of this recent imagery.

So I just wanted to note a couple of things about these live feeds that we've shown here. These are live feeds that are provided by hardware from the ArcGIS Online community. So you need to log in with your ArcGIS Online credentials.

They just come with your subscription. There's no extra charge that's required. There's no credits that are used to access these.

These feeds can be shared publicly. If you want to include this in the public information map for your jurisdiction, you can do so. And there's some instructions on how to do that in that blog post that's referenced.

Historically, some of you may have used some of the live feeds that have come in from one of our servers that we've got listed here. This has kind of been the historic location of a lot of these feeds. A lot of this information has been transitioned over to ArcGIS Online.

And eventually we'll retire this particular service, but all the data will still be available from either ArcGIS Online or other sources. So no plans to turn that off anytime soon. It'll be around for at least a year, but stay tuned for more details of the deprecation plans for this information.

Also we've wanted to highlight some of the live feeds that are available from the user community. So we've set up an ArcGIS Online group as a part of our Disaster Response Program org site, where we're starting to index items that have been registered in ArcGIS Online from the user community. So here we've got a couple to start with from our friends at the Pacific Disaster Center in Hawaii.

We've got their integrated hazard service registered here as well as global cloud services. So this is a public group. And then you can look at, and we'll continue to curate this and add to this list over time.

There's a great set of ArcGIS server services from the user community that's out there that you can add in directly. So NOAA just released a new version of their nowCOAST system. And all of the ArcGIS server services that power that new system are also out there and available. And there's the REST endpoint. They will be working on registering that content with ArcGIS Online.

FEMA has a great set of services as well that show things like recent declaration status, shelters, a great set of data from FEMA. And then USGS has their IGEMS system with different natural hazards across the US and world. So, again, another set of additional resources from the user community that you can leverage and augment with inside your own application.

I also wanted to give a shout-out to our business partner, AccuWeather. They've done a great job of using our technology to provide their additional premium content and make that available. So if you look at the marketplace, you'll find a lot of their entries. I want to call out that this information isn't just available for the US. They have different regional packages, like Canada and Europe, but also have content that's available throughout the world.

So in this screenshot from a couple of days ago, it shows some of their key data layers here in this view. We have their high resolution weather radar data. And we're looking at also their own storm path data, so they give predictions on where various storm types will be in different time intervals, 15 minutes, 30 minutes, 45 minutes, and what could be a potentially impacted. They also have their own warnings layer that their own meteorologists come up with as they monitor their customers' facilities throughout the US and the world. So it's a great set of additional data that can augment your existing arsenal with some really high-value products that you can add into your own application.

We've also been working with them recently with the refugee crisis in Europe and looking at some of this data that's available there as well. So you can see weather radar from Europe, some additional warning layers that help us give context to the situation on the ground for the refugee crisis in Europe. But, again, thanks to our partner AccuWeather for some of this data.

So these are some of the data sources that are available globally and throughout the US that you can just add to your existing common operational picture-type applications for situational awareness purposes. Obviously, you want to augment that with information that's available locally. So we don't have a good collection of all the local data that's available but wanted to give you a sense of some of the types of things that you can look for, like traffic cameras, for example.

If your department of transportation agency has those camera locations registered in a live image, it's really easy to put together a pop-up in a layer like we're looking at here for traffic in New Jersey and see kind of the current conditions. There may be other types of information in feeds that you're looking for locally as well. These may be from a crisis information management system or from other sources. But this is key things that you'll need to look to build locally to provide additional situational awareness, so incident locations, basically what's happened; operations information, what you're doing about it and how that's described in points, lines, and polygons, like the command post or the keep-out area, that type of thing; integrate roadblocks and road closure information from local sources; how you're managing assignments and who's doing what for the response.

What's the current evacuation area? Where are the local shelters that have been set up? What's the status of critical infrastructure, like hospitals or airports or the emergency operation center status.

So these, again, are other kind of good data sources to go look for and look to tie in and build into your existing applications. So now we're going to turn it over to Kevin Armstrong, who's actually going to walk us through building a web map, adding in some of these live feeds, turning some of the knobs and dials of the settings, and then configuring that in an operations dashboard. So take it away, Kevin.

KEVIN ARMSTRONG: OK, thanks, Jeff. And as Jeff mentioned, I'm going to walk you through just using ArcGIS Online and consuming some of these live feeds that, again, anybody with access, with a log-in to ArcGIS Online can create maps with and use to build applications. So since obviously we have a hurricane just offshore, we're going to go ahead and use that today as a scenario that we want to build a dashboard of live feeds to help us monitor the situation with Hurricane Joaquin as it moves up the East Coast.

So the first thing I do is I go into a Web Map. And I have a few feeds already in here from the ArcGIS Online live feeds. So we have weather warnings and stream gauges, and you can see those on the map now.

But what I want to do is I want to know where the hurricane is. So the first thing I'm going to do is go and browse the Living Atlas layers that are part of ArcGIS Online. So I'll go in and just do a search for live feeds, and that will return to me all the different services that we have published in ArcGIS Online.

So you can see these are-- Jeff had already just gone over-- some of these services in here. So you can see what we have available. There's the stream gauges.

What I'm interested in today is the active hurricanes. So I can just add that as a layer to the map. And you see it brings that in, and I can see Joaquin down here. And I see the forecast path and, again, this is the 11:00 AM forecast that NOAA just issued.

So I'll add that to the map. And the other thing I want to add is our wind speed. So hurricanes are, obviously, they're going to bring us a lot of precipitation and a lot of wind. So those are two things that I want to focus on for this particular map.

So I've added in those two layers. And you can see here, I have the-- again, here's Joaquin as of 11:00 AM, 126 miles an hour top wind speed, and we see the forecast path. And I also have all of our wind speed stations. And I can see the speed of the wind and the direction. Again, this is a global data set so I can see this for the entire area of the southeast.

So the first thing I want to do, once I add these layers in, is these are live feeds. So what I want to do is go in and set the refresh interval for these layers so that the map will automatically update. I don't have to pan or zoom to get the most recent data.

So depending on the data source, you can set the refresh interval accordingly. For the wind speed, I'm going to set this refresh interval as well. I'll just set each of these two to one minute. You have to check each individual data source really.

They're updated depending on the source of the data. So the NOAA data is pushed out every few hours with the hurricane forecasts. But the wind speeds are updated every few minutes.

So now we have our hurricane path and our wind speeds added in. But one thing that Chris had mentioned earlier is sometimes it's great that we have access to all this live information. But sometimes we can get information overload. And we only want to show information on the map that requires your attention, all right.

For wind speeds here, it's not really necessary for me to see all the wind speeds in the region. Perhaps I just want to see the ones that are above a certain speed. So I'm going to go ahead and put a filter on this wind speed layer and just put a filter and say only show me wind speeds that are greater than, say, 15, in this case, it's kilometers an hour.

So I'm going to filter out all the noise, so to speak, and only show me the stations that are experiencing higher winds. All right. So that way I'm not cluttering my map, and I'm drawn into the areas where there are problems or where they might need my attention. So I can see the South Beach area around Miami has quite a few stations here with some high winds.

So once I have that filter in place, the next thing I want to do is I want to add in some local data. So I've gone out to the web, and I found some local traffic camera services. And I'm going to go ahead and actually let me do this.

This is an ArcGIS server service. And what I want to do is I want to make that service available to everybody in my organization. So what I'm going to do is register that service with ArcGIS Online with my organization.

So I'll just call these Florida traffic cameras. And we'll put some tags on here. So by doing this, when I hit Add Item, I'm basically bookmarking that ArcGIS server service. Whether that's mine or that's coming from another agency, I memorized, basically telling ArcGIS Online where that service is located.

I'm not uploading that data to the cloud or anything like that. I'm just making it available to everyone in my organization so that, if they're in a map and they want to add data to it, they can do a search, type in either one of these tags, and add that service to the map. That way they don't have to go out and find a rest endpoint and copy and paste it and add it to the map.

So when I go back into my map now, and I go to search for layers, I can just type in "traffic" and do a search in my organization. So here's those Florida traffic cameras, and I'll just add those to the map. So it makes it a lot easier for people to make maps. They don't have to know where the source of the data is located. I can register all these services in my organization ahead of time and make it easier for my users to discover them.

So let's zoom in a little bit and see some of these cameras and look at the information behind them. So when I click on a camera, I get the standard pop-up showing me all the fields and all the information behind those. But what I want to do is I want to clean this up a little bit. I want to actually see the image of the camera in my pop-up, and I want to get rid of some of this ancillary information.

Because as GIS professionals, this pop-up looks very familiar to us. It's kind of like using Identify in ArcMap. But our primary audience for this dashboard and this map is not GIS people.

This could be a state watch officer. It could be a director, et cetera, an operations chief. And we just want the pertinent information that they need to know in this pop-up.

So I'm going to go ahead and configure this. And we're going to put just some very basic information. I'm going to do a custom pop-up display here. So I'll start with our description field so that gives us the location. And we'll also add in the county.

And that'll give us the county name, and I'll just append county to it. Go ahead and center that. We make the top layer bold and underline it.

And then I want to add in that image. So you see this image, there's a URL in this field for an actual JPEG of the latest live image. So I'm going to go ahead and add that to the pop-up as well.

And we'll just put a caption. And for the URL, we're going to point to that field in our data that contains that image. And the link, if you actually click on the image, we can link out to a larger version of it.

So now I'll just save that pop-up. And now when I click on a camera, I get the location, the county-- and, well, that camera's not working. Let's find one that is. There's one that's working.

So there's the latest image. And I can click on it, and it will link me out to a larger version of it. And the other thing I want to do is these camera locations, it's great to see all these. But at this scale, it may not make sense to have all those cameras on. So I'm going to go ahead and set my visibility range, and I'm going to move this down to maybe about the county level.

So when I'm zoomed out, I don't want to see 1,000 or 2,000 different traffic cameras. I don't need to do that. But when I see an area of interest, if I'm interested in South Beach and I see there's very high winds, and I want to zoom in, then the cameras turn on at the appropriate scale. And I can click and see a live view to get more information about that spot.

OK, so very, very simple workflow to add these feeds into a Web Map. Now I'm just going to go ahead and save this. And now that I've authored this Web Map, what I want to do is I want something for my EEOC. It's great to have this Web Map, but I'm going to build an operations dashboard based on this Web Map so I can provide some more summary information.

Like Chris mentioned earlier, you want to have things that draw your attention in. Put some simple graphs and numbers on a dashboard so that you can look at it really quickly, and you know the current situation. So I'm going to go over to Operations Dashboard here and go ahead and create a new view. And this gives me two options.

So we can either do a multidisplay operation view or a single display. And the difference between the two is really where are you going to be viewing and interacting with this dashboard. A multidisplay view allows you to, if you have multiple monitors or you want to put more than just one map into a dashboard, the multidisplay view is what you can use for that.

You can drag widgets across multiple monitors. And it really gives you a lot of flexibility. But if you're going to have someone accessing this dashboard via a browser, perhaps you have an operations chief that's running around or maybe your director who's out briefing the governor, and they're going to have an iPad. And they want to be able to view this dashboard, you're going to want to use the single display view, and this is required for viewing in a browser.

Now I could easily make two different dashboards that read the same Web Map. It just depends on who my users are and what are their viewing requirements. So for this case, I'm just going to build a single display because we're going to ultimately use this in the web. So we'll go ahead and select, the first thing we do is select the Web Map that we want to use for this dashboard. So we'll select our map that we just saved.

And we get to go through and select which data sources we want to use for this dashboard. So I can just select which layers. If I want to build a widget, which layers do I want available to me for building those widgets? And I can just turn on a few of these.

And what do we want people to be able to do with this data? How do you want to interact with it in the map? I want to be able to show the pop-up, pan to a feature, zoom to a feature, maybe even highlight. So once we've done that, now we're ready to start building the dashboard.

But one thing I want to do is I'm interested-- this stream gauges layer, again, this is for the entire US. Now if I was building this, say, for the state of Florida, I would want to filter that data. I'm not interested in a widget that shows me stream gauges in North Dakota. I just want to see stream gauges for Florida.

So what we can do is add some very specific filters based on the content. So I'll just add in, these will be Florida stream gauges. And I'm going to enter in all the gauges where the state is equal to-- let's look at the data here, so it's listed as a two-letter abbreviation-- so state equals Florida, and I'll hit Add.

And what this does is it makes another data source available to all the widgets that I build in Operations Dashboard. So I can build a widget looking at stream gauges for the whole US, but I can also point to this filter here and show stream gauges just for Florida. Same thing goes for wind. We'll build this out for Florida wind.

And in this case, this is a global data set. So we'll do it where country contains Florida. We have a state name in there. And we'll hit add.

And the reason I'm not doing this in the actual Web Map itself is actually I do want to see winds for other areas outside of Florida. So if I'm looking at a map, it's nice to see what's the wind in Georgia or what's the wind in Alabama, depending on the path or where the storm's coming from. But my widgets, the things that draw me into this dashboard, the things that I'm going to use to make decisions on, I want that based on Florida data.

So we can build these queries here into the dashboard and be able to use those as we constructed. So we'll hit OK here. And this will build our dashboard, bring in that Web Map. And now we have our Web Map with some space for widgets.

And as I mentioned before, you know, a hurricane, it's going to bring a lot of rain and it's going to bring a lot of wind. So let's focus on those two data sources now.

The first thing, let's focus on rain. So I'm going to start with the stream gauges that we have. So I'm going to add a widget here, and we'll just do a simple list widget. And my data source is not going to be stream gauges for the whole US. It's going to be that query that I just set up, the Florida stream gauges, so we can call this our Florida Gauges.

And we're going to sort this by the stage of the stream gauge, what stage is it at? Is that flood stage or not? And we will sort this descending.

And then on the display, what do I want to display in this widget? The first thing would be, we'll do the water body. So what particular river are we talking about?

And then we can do the location. So along that river, where along that river is our stage located or is our gauge located? And then some additional information we can add from some of these fields. We can say, OK, what's the observed level or height of that gauge, and we can grab that from our attributes so observed. That's in feet.

And then we can look at what is the height that that gauge reaches flood stage. And then let's add another field here for observation time. So how current is this data? And we can get in italics and maybe even add some bold in here, just to draw your attention to it.

So when we hit OK, now we have a list of all the stream gauges in Florida by stage. So I see that the St. John's River in Astor is actually above flood stage. So flood stage is 2.8 feet. The last observation, as of 11:30 AM, has it at just over three feet.

So these are some stream gauges that require attention. These four have already reached flood stage. And then you can see below that, we have some that are at action stage.

They're not quite there. So the Peace River is a foot and a half or two and 1/2 feet below flood stage right now. But I want to keep my eye on it because it's getting close.

And then just to kind of summarize all these gauges, I'm going to add in a chart widget here. And this widget will use the same exact feed for our Florida stream gauges. And this will be our gauge summary.

So I want to see, of all the gauges that I have, how many are at action stage? How many are at flood stage, et cetera? And we'll display these as bars, and we'll put a label on them. And then if you click on one, we can highlight and maybe perhaps zoom, too, and hit OK.

So now I see there are four stream gauges that are at minor flood stage. So if I right click and highlight, those will show up and flash on the map for me. And we have 14 at action stage. So a real quick and easy way to give me a quick view of what is the flooding status within the state of Florida, I can see these four areas are already at flood stage. And then I have a list of-- I have 14 others that are approaching flood stage, so a very quick way to get a good summary of the current conditions.

The other thing that we can do with the map itself is introduce some filters. So what I want to do is I'm going to put in some additional filters for the stream gauges. So I want to be able to-- let's do it by stage, hit OK-- what I want to do is have the ability, if I have a bunch of data in here, say I had 50 or 100 stream gauges that were all at flood stage, I want to be able to filter my map and just show me everything that's at minor stage.

So when I click minor, that automatically filters the data on the map and updates all my widgets. So I see only, in the list view, I only get the four at that stage, my gauge updates, and my map updates as well. So this is just some additional functionality to kind of thin the data in your map, depending on whether you want to do it by, in this case, a stream gauge, by the stage of all those gauges, or maybe something you could do by wind speed, or maybe you want to filter out just all the weather warnings that have flood in them, right, show me all my flood watches and flood warnings. So some simple tools that you can do to allow someone to interact with the map.

Well, the next thing we're interested in is-- we're going to insert another panel here-- is we're going to learn about wind speed. So we'll do the same thing. We'll put in a list widget here. And we're going to point to that Florida winds query.

And we'll say top winds, and we're going to sort this by wind speed. And we're going to put the area with the highest wind speed on top and let's say 50 features here for this. And we'll do station name, and let's add in the wind speed.

So the wind speed is in kilometers an hour. And let's hit-- oh, and for feature actions when somebody clicks on, we can show a pop-up, show a highlight, and maybe zoom to it. So if somebody clicks on either one of these records in the list widget, these are the functions that they'll be able to do with that.

So I see Pensacola now has the highest wind speed as of the last few minutes. So, again, we can show the pop-up, highlight it, or zoom to it. We can just highlight it. Here's that particular wind station, all right, so very useful to see.

Now I have a nice widget that allows me to monitor wind speeds. And as that data is refreshed, this widget looks at that live feed again. So if another station comes in and it's at 28, then that's going to come up to the top of this list.

The other thing I want to manage is just look at some of our wind gusts. So I'm going to put in a gauge here on the bottom. And, again, I'm going to point at the Florida wind layer. And these are going to be our peak wind gusts.

And I'm going to do a statistic, and I'm going to select the wind gusts field. And I'm going to choose the maximum. So what we're doing here is, of all the data of all those points we have in Florida, whatever one has the highest recorded wind gusts, that's going to show up in this gauge.

And I can do a target range from, let's say, zero to 100. I can put a threshold in here of, say, 50. We can change the appearance, change our colors from, say, green below the threshold, and then when it gets above, we can turn it, say, yellow. And it show some labels in there.

So now I have a little gauge here that's showing me the peak wind gusts in the state of Florida is now 37 kilometers an hour. So that's probably coming from Pensacola or one of these top two. But now I have another simple gauge that I can have a quick look and say, OK, the highest wind that we've recorded that we've had so far is 37 kilometers an hour.

So now that we've built this dashboard, let's go ahead and save it. We'll call this our Live Feeds Dashboard. And we can fill in a summary and description. I'm going to go ahead and save this Operations Dashboard.

So now that we've built it, we're ready to go ahead and share this out. So I can go back to my content here, and you see here's that Live Feeds Dashboard that I've created. So I can go ahead and I'll take that map as well, and I'll share those with everybody in my organization.

And let's go ahead and look at this. Since we built this in a single display, I can actually open this in a web browser. Oh, let me log in.

So here's our dashboard. Again, If I had a tablet or a laptop, I could view this. And I see here's, again, my list of top winds, my peak wind gust gauge, and then we can go over here and look at our stream gauges as well. So all the functionality that we had before in the desktop version is still here so I can still highlight our four stream gauges that have reached flood stage. I can zoom to those, et cetera.

And I still have my filters. Obviously, I could change the base map as well. We've even added in a night view option for the dashboard.

So you can switch depending on if you're out in the daytime or the nighttime. So very simple process to collect and pull in all those live feeds that you have access to and build a very nice, very simple dashboard that, again, can be used by a variety of people to give them very quick and useful and actionable information about the weather situation. OK, with that, I'll wrap up, and we'll pass it back to Jeff.

JEFF BARANYI: Great, thanks, Kevin. Well, that was great. So hopefully you got a sense there of now how to make that actionable, how to actually do that yourself.

Start with a Web Map. Add in the various live feeds you're looking for. You've got to turn some knobs and dials inside the Web Map to have the automatic refresh set, have the pop-ups configured how you want, and then be able to bring that in and configure that in the Operations Dashboard. For situational awareness purposes, maybe that runs unattended at the front of your emergency operations center or command center.

A couple of other quick examples that we wanted to kind of build on top of in addition to the Operations Dashboard and these may complement what you have is, in this case, we're looking at an example of the configuration of the story map journal, and kind of for our briefing purposes. So now we're looking at live information on different pages here of this story map journal. And we get a sense of what's the current severe weather conditions, obviously, the hurricane in the Atlantic. What's the current wildfire situation?

And as you make changes to these Web Maps, as you update the information, as you update the extent, that'll be automatically brought forth and brought back here inside of the story map map journal. And these are interactive. We can dig in and click on any of the elements that are inside here and get more details. This is a web-based app that can run either on your desktop machine or your tablet, so a great way to configure some of the same type of information for situational awareness purposes.

Another companion way to configure some of these Web Maps is to leverage the presentation mode of Web Maps. So I have a similar Web Map to what Kevin showed just a few minutes ago. And I have various live feeds here configured in different slides, if you will. And this is running, you know, unattended so auto advance every 10 seconds or so and show us the most current up-to-date information. So this kind of builds on top of the monitoring Esri facilities example or our idea that Chris talked about in the beginning of this presentation.

And now we can see, what are the current alerts for some of those facilities and flip through some of the slide content that's available here. And if I want to, I can jump forward to any of the slides that are in the collection and get a sense of what's going on. So this is another great way to have an app run unattended on different screens or monitors that you have access to to display the most up-to-date information to enhance your situational awareness. And, again, there's again the earthquakes example.

And then the final information product is a public information map. So this is our hurricanes and tropical cyclones public information map that we have configured as a part of the Disaster Response Program site. And, again, you see the live feeds configured with additionally social media. And these can be shared with the public to give a sense of what's going on because oftentimes they're looking for the same type of situational awareness information that those in command situations are.

So everything that we have showed you so far only requires ArcGIS Online. We've got the Web Maps that we've shown and some of the apps that come along with ArcGIS Online. One of the things that we wanted to talk about real quick as we're closing out is how you can add to that with real-time alerting and notification with the ArcGIS GeoEvent Extension for Server. And we just have a couple of quick examples that we wanted to show.

And, again, you can listen to different live feeds of information from a variety of sources, whether that's EVL or social media or live feeds, and then apply some logic to those if they meet certain criteria, whether that be thresholds or geofences. And then send updates or alerts via SMS messagers or emails, and alert those once conditions are met, as Chris described at the beginning. So this is the example that we talked about.

In this first example, we simply had one rule set up from a GeoEvents perspective. We wanted to know when any Esri office was intersected with a severe or extreme weather warning and watch. And then a set of alert protocols happen kind of downstream of that. So we're not, even though this may be a very busy map, we can be lasered in on only the things that we need to look at, like the alerts.

In this example that Kevin actually put together, it's showing what's the potentially threatened critical infrastructure at any point in time. So based on a certain warning type, what critical infrastructure, like hospitals or stores or colleges, could be potentially impacted? And this is always up-to-date information as the alerts change and progress through the course of the storm or the event. The potentially impacted critical infrastructure will be updated. And alerts can be configured on top of this to give additional information.

And this last, more advanced example, it shows some additional tools and configurations that have been built on top of GeoEvents to provide some custom report. So if an earthquake happened, perhaps you wanted to be notified of all the vulnerable population centers that are nearby. So, again, this is using some of the solution templates that have been built on top of GeoEvents to provide some more advanced functionality.

While we had you here this morning, we wanted to provide an update from our solutions team. So the ArcGIS for Emergency Management Solutions Team has been working hard. In August, they had a couple of new templates, including the shelter locator and debris reporting solution.

One of the big things that they've been working on for their October release is a new configuration for situational awareness. This is actually a family of apps, including the ArcGIS Web Application Builder, Public Information Map, a Story Map Journal, that type of thing, and include starter feature classes for things like incidents and operations and roadblocks, that type of thing. So I think they talked about that on their webinar a couple of weeks ago and plan to include that in their October release, in addition to a couple of other updates that are listed here at the bottom.

Another thing that we wanted to talk about is updates from our Disaster Response Program. So this month, we've updated our examples group. This is a public group that shows recent examples of information products that either the user community or the Disaster Response Program has put together. And I wanted to highlight a couple of those.

One is the Story Map Journal that the Esri Story Maps team put together for the Syrian refugee crisis in Europe. And there's a link to that here and then also in this group that provides regional or global information on the crisis. We also put together an Impact Summary Map for the recent large earthquake in Chile that highlights the potentially impacted population there. That's another new addition to that group, as well as another great one from the user community and a Story Map Tour that was put together to highlight some of the activities for the recovery from a typhoon, the recent typhoon that hit Saipan a couple of weeks ago.

So, again, this is a public group that's out there. We'll continue to keep this up-to-date with new examples from the user community. If you have suggestions or suggested additions to this group, please email us and let us know. And we'll continue to curate and keep this group up-to-date with information. So we're getting close to our time here, and I'll turn it back over to Chris to help wrap it up and close us out.

CHRIS MCINTOSH: Thanks, Jeff. So as we said in the introduction, next webinar in this area will be November 5th at 9:00 AM Pacific, Preparing for Winter Weather. Please let us know if you have anything any particular concerns or issues you'd like addressed in the context of winter weather as soon as possible. And we'll try and include those in the next presentation.

If you have any other questions, suggestions, there's our email addresses for everybody on the team. And we want to make sure that these stay relevant to the challenges that you're facing as we go through the various seasons of the year and the various threats that those seasons provide. Always a good resource to follow, the Public Safety Team on Twitter.

We put out a lot of really good information, timely information, stuff about current events and current responses is put out there with links to information products that are being put out. So follow that Twitter account, and you can get the latest and greatest things as they're happening. And then it's never too early to start planning for next year.

The National Security Summit is June 25 through 28. And the Users Conference is the 27th. This is earlier. Usually the Users Conference is in July so this is earlier than it has been previously so put those dates on your calendar.

The call for papers for the Users Conference went out yesterday. So if you have something that you're interested in presenting, you can start pulling it together. And the submissions portal is open. Go ahead, next slide, Jeff.

Here are some resources for you. This webinar is available so if you can't get these written down, we'll make this available to you. But these are resources that are there for you. Some of these were referenced in today's program.

I'm going to call up the Esri Disaster Response Program, given that there is the hurricane out there. If you need assistance or advice, please take note of that URL. There's ways to request all different kinds of help from us through there.

So with that, I'd like to thank everybody for their time and please stay safe. And if you need us, let us know. Thank you very much.

[MUSIC PLAYING]