NOAA Coastal Flood Demo

Demo Org: https://noaacapstone.lightning.force.com/
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Slides: https://docs.google.com/presentation/d/15WxK7deJv_LySLBrBYTV8kNCMnFIz6a7Dv8EuQP4uIE/edit#slide=id.g
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Personas

Sofia Tauss

Main Persona: Login

Background

- National Weather Service Coastal Flooding Supervisor for the East Coast
- Tired of watching 40 different weathermen/women every morning so she can monitor potential flooding
- Currently tracks past weather, water level, flood data in local excel files
- Currently tracks current water level on NOAA API website, making it difficult to compare sensors
- Wants to be able to make fast, informed decisions based on past and live data analytics

Benjamin Bailey

Sub Persona: No Login

Background

- Government Contractor in charge of setting up flood barriers on the east coast

Allison Arenado

Sub Persona: No Login

Background

- NWS flood damage auditor

- Busy traveling up and down the east coast checking out potential reports for fraud
- This slows down the entire process of providing aid

Family Owning a Coastal Surf Shop

Sub Persona: No Login

Contact Name: Sam Stroman

Background

- Family lives in _ _ _ _ and owns a surf shop
- They get a ton of their business from big wave surfers renting boards, so they need to stay open even if its storming
- They also need to know when a flood will happen so they can close quickly
- Coastal flooding has lead to $10k in lost inventory in the last two years

Story

From-To Shift

From multi click data monitoring with cumbersome historical analysis to single integrated platform for entire east coast

Story Components

Hero: NOAA/NWS
Challenge: Difficult to determine efficient flood barrier placement and flood damage aid, late flood notification to coastal residents
Helper: Salesforce, OpenAPI, Platform Events, Einstein Analytics, LWC
Victory: Faster pace of innovation, safer systems, and lower costs devoted to overhead

Storyboard

- **Flooding Background**
  - For the purpose of this demo, some key terms
    - storm surge is difference between the measured water level and predicted tidal height
    - tidal surge is the difference between the measured water level and maximal high tide for the day
    - High-tide coastal flooding is defined at water rising about 1.5 feet above normal daily high tide mark
    - All water levels in feet, any raw water levels are measured with mean sea level as reference
  - NOAA reported earlier this summer that the increase in high-tide flooding along the east coast since 2000 has been "extraordinary"
  - The frequency of this has increased drastically with rising sea level, which are a foot higher then they were 100 years ago
  - NOAA predicts within the next 10-30 years, coastal flooding could occur 50-75 times a year in many locations

- **Current Platform**
  - Currently, Sofia Tauss uses the NOAA website to look at flood data, both historical and current
  - This site has a nice map, but you can only look at one location at a time, with multiple clicks to see todays floods and even more to get historical data
  - This complicates the process of sending out flood barrier service and flood damage investigations, and can often send them on inefficient routes or non-optimal locations
  - It also makes it difficult to see the current state of coastal water levels, to send out notifications to necessary resident
- **Salesforce Capabilities**
  - One day, NOAA decides enough is enough and decides to invest in Salesforce to optimize their coastal flooding management service
  - Using the power of OpenAPI, Sofia can connect to the NOAA Tides and Currents API
  - Using platform events, she can see new water level readings from each of the 66 east coast water sensors every six minutes
  - Using Einstein Analytics, Sofia can see all of this live data, as well as data going back as far as a month, in a dashboard allowing for geographic, quantitative, and chronological analysis of water level and flooding
  - [POTENTIALLY WEATHER TOO]
- **Demo:** Sofia Tauss today is going to use some recent data analytics to prevent future flooding, manage recently harmed locations, and mitigate future damage

  a. Flood Barriers
      i. Start in Service Console, logged in as Sofia Tauss
      ii. Hover over heavily flooded state (predetermined) and take a deeper dive into that location
      iii. We won't want to just send out a flood barrier in any location, as there is a bit of randomness
      iv. Filter by state, note that there has been a lot of high storm surges this month, but we want to make sure that the duration of those storm surges was longer than just 20-30 minutes at a time before we deploy flood barriers
      v. Send out flood barrier case Benjamin
  b. Flood Damage
      i. Click over to the weekly view
      ii. Note the Highest Average Tidal Surge, and point it out on the map
      iii. But, we want to see a flood with a long duration and high tidal surge, so we will sort by peak tidal surge
      iv. Click into one of the top sensors, and find the flood on this week's water level
      v. Note that there is potential damage
      vi. Send out flood damage case to Allison
  c. Flood Prevention
      i. Click over to daily view
      ii. open up phone, data off
      iii. Look at today's surges, click into any current surges, if there is a surge note that
      iv. There aren't any floods that have started RIGHT NOW,
      v. but lets say that, perhaps, there was a huge rise in water level on cape cod
      vi. our chatham family will have to know immediately to close up shop

   vii. send out platform event from personal computer

   viii. Show text

- Thank You, take questions

Scripts

Slides

SLIDE 1
Hi my name is Robbie Goodman
I'm a student at Northwestern University, Class of 2022, majoring in Computer Science

This summer I was a Solution Engineering Intern in the Public Sector on Jacquannette's ECS team

In this demo, I'll be showing how potential clients can use the Salesforce platform
to make timely decisions informed by live and historical data analytics

SLIDE 2
A quick overview of my agenda for the day

- First, I'll give some background on coastal flooding and its recent rise
- Then, I'll introduce some personas and the challenges I'm looking to solve for them,
- Which leads into a live demo
- And then we'll have some time for questions at the end

SLIDE 3
Some of the terms I'll be using today are

- storm surge is difference between the measured water level and current predicted tidal height
- tidal surge is the difference between the measured water level and maximal high tide for the day
- High-tide coastal flooding begins to occurs with tidal surges of 1.5 feet

And Managing coastal flooding is more and more difficult

- NOAA reported earlier this summer that the frequency of high-tide flooding on the east coast,
  - tied to severe weather events or otherwise,
  - Has drastically increased in the last 20 years
- NOAA predicts within the next 10 years, coastal flooding could occur 50-75 times a year in many locations

SLIDE 4
Managing any emergency is not a one step process
Today we are going to have focus on

- preparation (flood barriers)
- Response (text notifications)
- Short Term Recovery (flood damage auditing)

SLIDE 5

Our operating persona today will be

- Sofia tauss, who will use the service console to manage coastal flooding service and alerts
- She's super excited to about the new platform,
  - because she doesn't have to watch 30 weathermen every morning to do her job

Other Personas related:

- Ben Bailey, help us set up flood barriers
- Allie will audit some flood damage
- We are also gonna save the stroman's from flood damage to their surf shop

SLIDE 6

Currently

- Sofia uses the pictured NOAA website for historical and current data
- While functional, this website only allows for one visualization at a time, and no ability to compare between sensors
  - It takes about 30 seconds to see the water level of the past week in any given sensor
  - This complicates the process of sending out service requests, leading to inefficient preparation and recovery
  - Live data is also not readily available, making it difficult to send out timely flood warnings

Demo

Transition

- Enough is enough
- *Using open API, seamlessly connect*
- ***Platform events*** *coming in live*
- *Einstein presents visualizations **(monthly)***
  - *Allowing for geographic etc.*
- *Transition from Cumulative to individual data **(daily)***
  - *Major change from the past website*
  - *See data from today immediately*
  - *Compare sensors*

Flood Barrier

- Sofia will walk through our use cases
- Note wilmington

- - Note hurricane Isais
- Note flood map
- **Filter by duration**
  - *customize our view for faster analysis*
- **Filter by NC**
- **Click wilmington**
- **Create Case**
  - *While looking at data, no movement*
  - *Automated business processes*
- **Present case**

Flood Damage
- Note map change
- **Click into USCG**
  - Note timeline, no floods
  - *the whole NOAA Gif=two clicks*
- **Filter by PA**
- **Click into bridesburg**
- **Create case**
  - *Between work and analysis*
- **Present Case**
  - *See work, create work, and analyze*

Text Notification
- Note USCG
- **Note floods today, flood sidebar**
  - *Details of most significant data points*
- **Click into closest to flood**
  - *Since we are seeing LIVE DATA no flood*
- **We will have to simulate a flood**
- **Pull up stroman's phone**
  - *Flood notification is automated*
- **Click flood**
  - *Necessary info here*
  - *Sofia has helped Stroman's property and safet*