FRONTEX
EUROPEAN BORDER AND COAST GUARD AGENCY

EFS Weather application

EUROSUR Fusion Services

27-10-2016

Author: Personal data

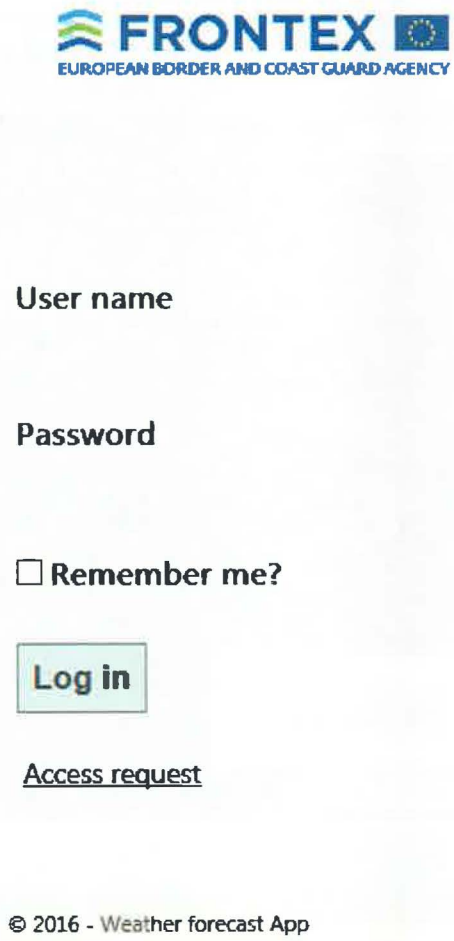
Background

- Strengthen the cooperation between the EUNAVFORMED and Frontex
- Provide Libyan Coast Guard (LCG) with reliable weather forecast information useful for their activities
- Support operational planning and informed decision making
- Distribution of weather services already provided by Frontex

- First version 0.1
  - Released on 04/10/2016
- Second version 1.0
  - Released on 26/10/2016
  - Minor bug-fixes
  - Additional weather layers

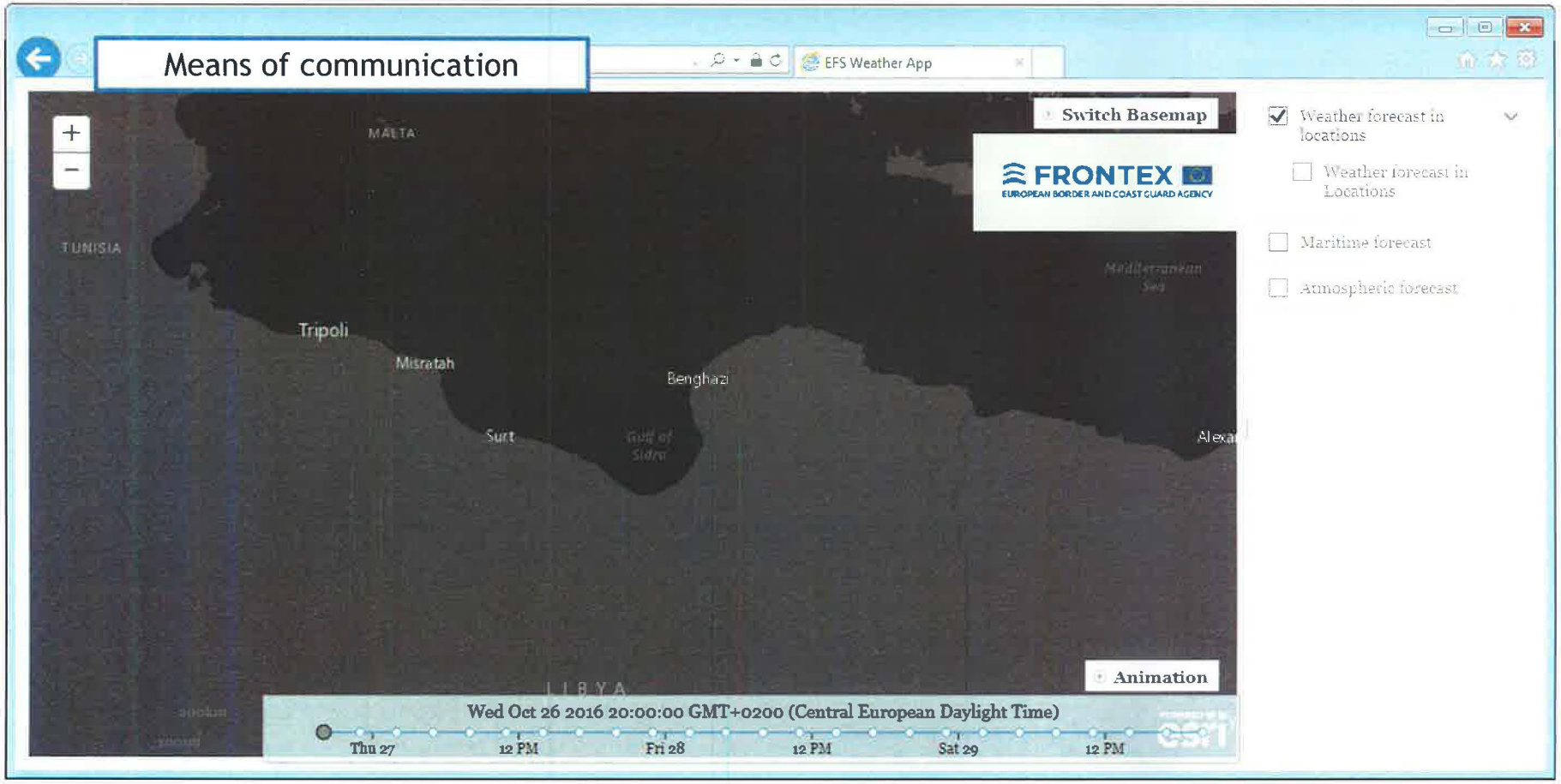
Access

- Secured access:
  - HTTPS
  - Login page
  - User and password
  - Session timeout (60 minutes)
- Access request:
  - Means of communication



- Means of communication

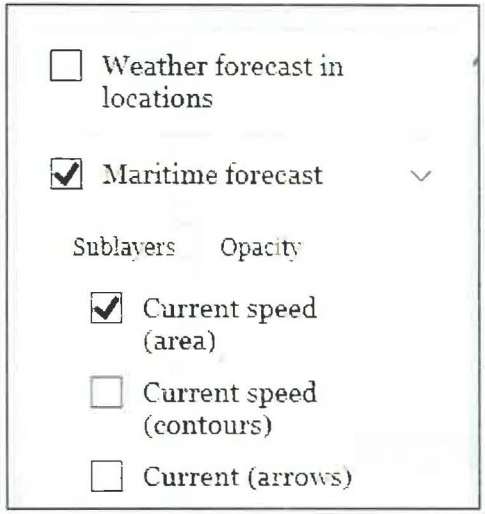
Map application

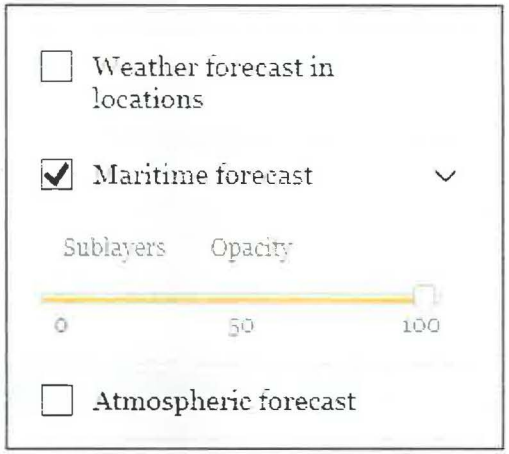


Map application: basic controls

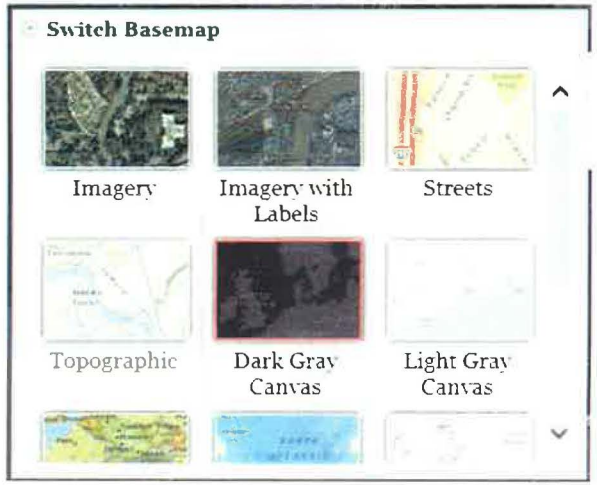
- Zoom in/out

- Table of contents:
  - List of available layers
  - View/hide layer
  - Custom transparency



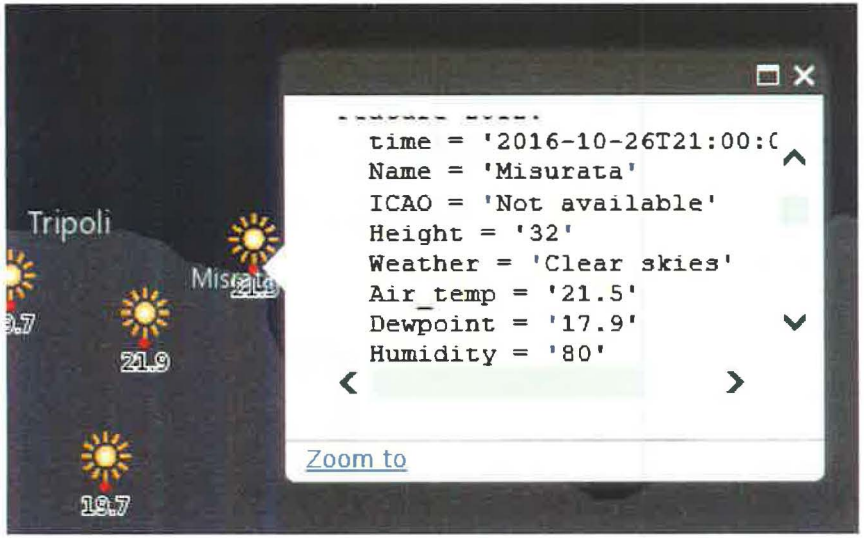


- Basemaps: list of available basemaps



Map application: feature information

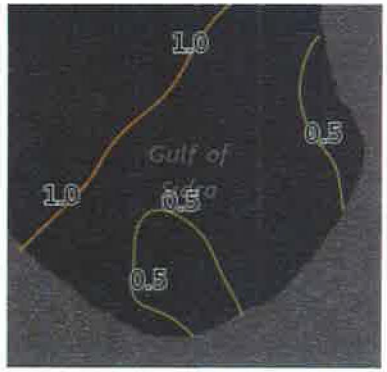
- Get information from map features
- By clicking on the feature



Weather application: types of layers

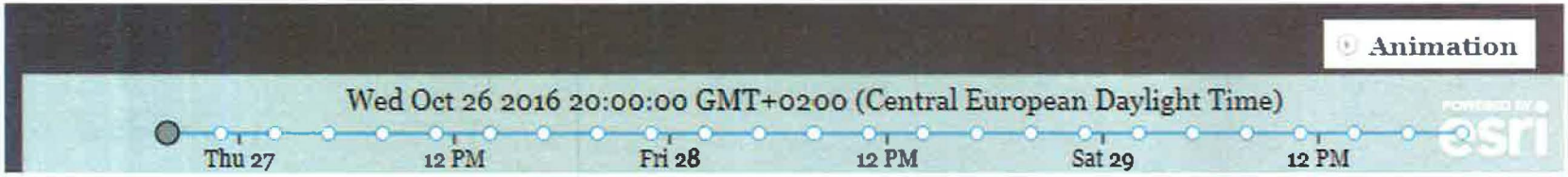
- Layers contain information on weather parameters

- 3 types of layers:
  - Locations:
    - Weather information of a particular location
  - Contours:
    - Isograms
    - Lines representing equality with respect to a given variable
  - Areas:
    - Areas representing values of variable within a certain threshold

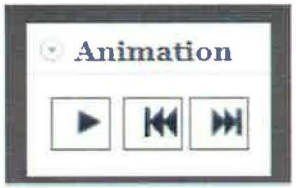


Weather application: time slider

- Time slider
  - Allows to change date of visible information



  - Helps to manage forecast information
  - Improves data visualization



  - Displays selected time in local computer time zone

Thu Oct 27 2016 14:00:00 GMT+0200 (Central European Daylight Time)

Weather data: availability and types

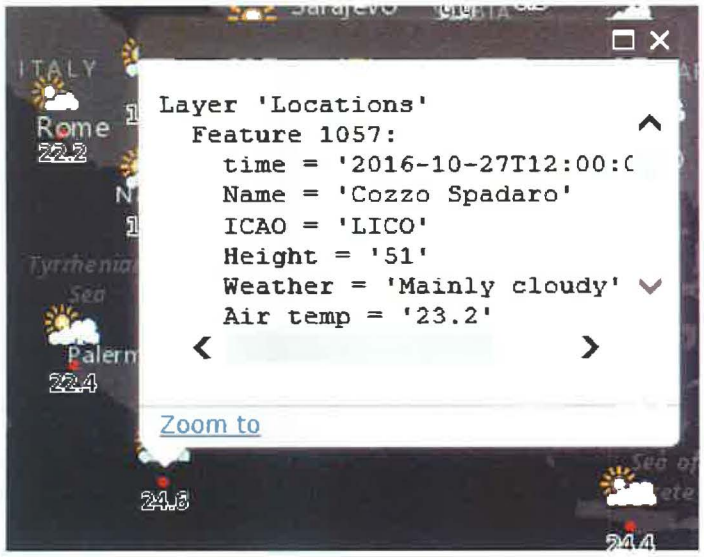
- 3 days forecast available
- 3-hour interval

- Types of weather parameters:
  - Weather forecast in locations
  - Maritime forecast
  - Atmospheric forecast

Weather data: Weather forecast in locations

- General weather conditions
- Information of weather condition on a particular location
- Visible icon is a summary of weather condition
- Detailed information by clicking on the icon

- Information of all parameters available:
  - time = '2016-10-27T12:00:00.000Z'
  - Name = 'Palermo/Punta Raisi'
  - Height = '20'
  - Weather = 'Thunderstorm'
  - Air_temp = '20.2'
  - Dewpoint = '17.9'
  - Humidity = '87'
  - Wind_speed = '8'
  - Etc.



Weather data: Maritime forecast

- Parameter from maritime environment
- Information of variable in an area
- Color code
- Information of the threshold/isogram by clicking on the area/line
  - Except parameters with (*)

- Parameters available:

Current speed
Current (arrows)*
Sea surface temperature
Significant wave height
Swell (arrows)*
Swell height
Swell period
Wind (barbs)*
Wind speed
Wind wave height
Wind wave period

Weather data: Atmospheric forecast

- Parameter from atmospheric environment
- Information of variable in an area
- Color code
- Information of the threshold/isogram by clicking on the area/line

- Parameters available:

Air temperature 2m
Apparent temperature
Precipitation amount 3-hourly
Precipitation amount 6-hourly
Precipitation probability
Pressure mean sea level
Relative Humidity 2m
Total cloud cover
Visibility
Wind gusts

Weather data: special graphics

- Current (arrows)
  - Speed and direction of current.
  - The arrow points to where the current is going to.
  - The larger the arrow, the higher the speed

- Swell (arrows)
  - Combination of swell height and the direction.
  - The arrows point to where the waves are going to
  - The larger the arrow, the higher the swell

- Wind (barbs):
  - Contains wind speed and wind direction
  - Wind wave direction is the direction the waves are coming from
  - The symbol points to where the wind is going to
  - Each short barb stand for 5 knots
  - Each long barb stands for 10 knots
  - Pennant means 50 knots.

Weather data: "waves"

- Swell
  - Wind-generated waves that are not significantly affected by the local wind at that time.
  - They have been generated elsewhere or some time ago.
- Wind wave
  - Generated by local winds
- Significant wave height
  - Mean wave height (trough to crest) of the highest third part of all waves
  - Used as a measure of the height of ocean waves

Weather data: "temperatures"

- Air temperature 2m:
  - 2 meters above the ground

- Apparent temperature:
  - Perceived by humans,
  - Caused by the combined effects of
    - Air temperature,
    - Relative humidity
    - Wind

Weather data: "winds"

- Wind speed:
  - wind flow velocity
- Wind (barbs):
  - Graphic that represents both wind speed and direction
- Wind gusts:
  - Sudden, brief increase in the speed of the wind followed by a lull.
  - Duration is usually less than 20 seconds
  - Highest 3 seconds duration wind speed at 10 metres

Weather data: units

- metres (m)
  - Significant wave height, Swell height, Wind wave height
- seconds (s)
  - Swell period, Wind wave period
- hectoPascal (hPa)
  - Pressure mean sea level
- metres per second (m/s) -> 1m/s ≈ 1.95 knot
  - Wind speed, Wind gusts, Current speed
- degrees Celcius (c)
  - Sea surface temperature, Air temperature 2m, Apparent temperature
- percentage (%)
  - Relative Humidity 2m, Precipitation probability
- millimetres (mm)
  - Precipitation amount 3-hourly, Precipitation amount 6-hourly, Total cloud cover
- kilometres -> 1km ≈ 0.53nm
  - Visibility

Thanks for your attention