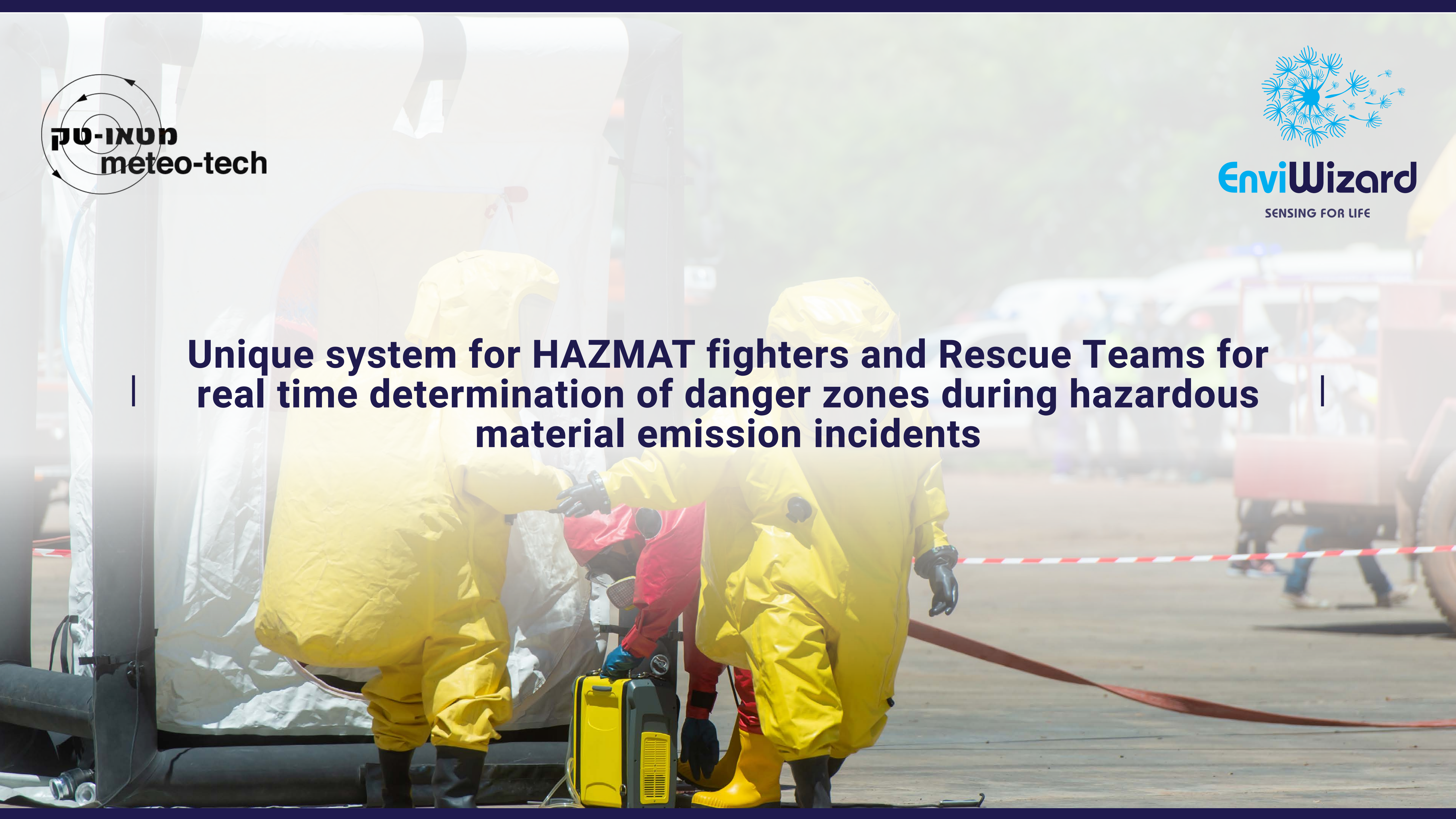


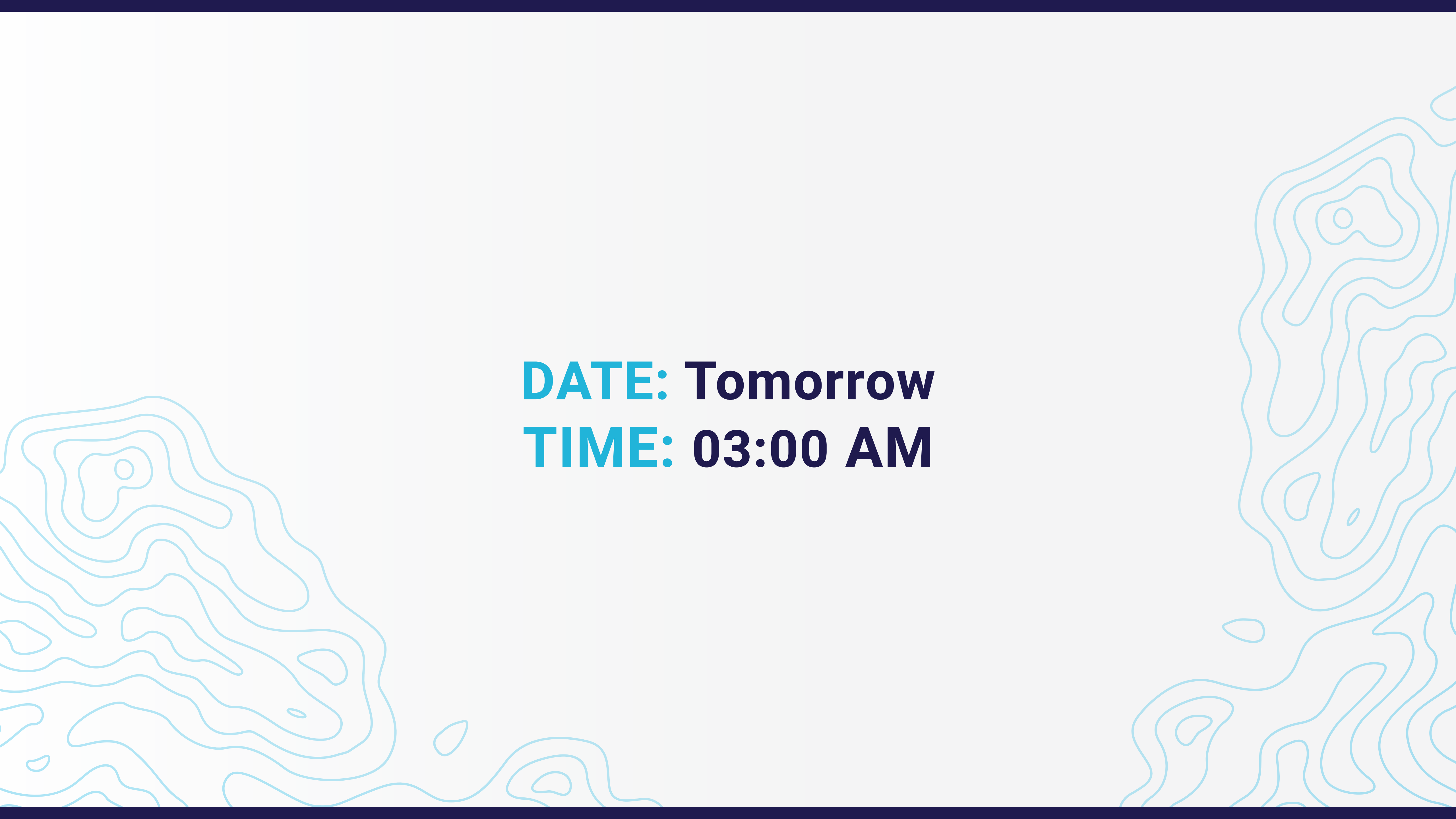
EnviWizard
SENSING FOR LIFE

**Unique system for HAZMAT fighters and Rescue Teams for
real time determination of danger zones during hazardous
material emission incidents**



The background of the slide is a light blue topographic map with contour lines. The map is centered around a white rectangular area containing text. The text is written in a bold, sans-serif font. The words "It can happen to" are in white, and the word "you!" is in a darker blue color. The text is set against a dark blue brushstroke background.

It can happen to you!

The background of the slide features a light blue topographic map with contour lines, positioned on the left and right sides. The central area is a plain white background.

DATE: Tomorrow
TIME: 03:00 AM

INCIDENT:

Hazardous material leaks from a factory **and spreads toward a residential area**




The image features a light blue background with a topographic map pattern of contour lines. A central horizontal brushstroke in a darker blue color contains the text. The text is in a bold, dark blue, sans-serif font.

THE RESIDENTS ARE IN DANGER!




Fire and rescue forces were dispatched to the emission site...

But the hazardous material is already airborne and flows toward populated areas!

The background of the slide is a light blue topographic map with white contour lines. The map is centered on the text, with the contours radiating outwards from the center. The lines are of varying thickness and form irregular, wavy shapes that represent elevation changes. The overall effect is a clean, technical, and somewhat abstract background.

**Handling a HAZMAT (Hazardous Materials)
incident and the prevention of disaster
requires relevant and quick decisions:**

The background of the slide features a light blue topographic map with contour lines, positioned on the left and right sides, framing the central text.

Should residents be evacuated?
From where should they be evacuated?
When to begin the evacuation?

Every decision is crucial and can make the
difference between

Success and Catastrophe!



HAVING ALL OF THE DETAILS IS ESSENTIAL TO:

Making the **correct decisions**

Issuing warnings and instructions to residents

Notifying the **fire and rescue forces**





What is the emission **rate**?

What is the HAZMAT **concentration**?

What is the **speed and direction of HAZMAT propagation**?

Which **areas might be impaired**?

What is the time to begin **evacuating residents**?

ALL OF THESE INFORMATION MUST BE COMPILED

IN REAL TIME!

RAPIDLY; AND

ACCURATELY



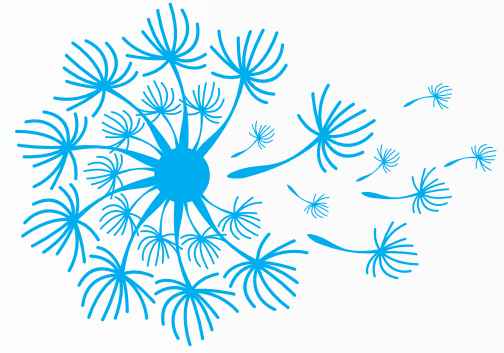
**“The greater the knowledge,
the smaller the risk”**

(Steven Harper)



“Knowledge is Power”

(Francis Bacon)

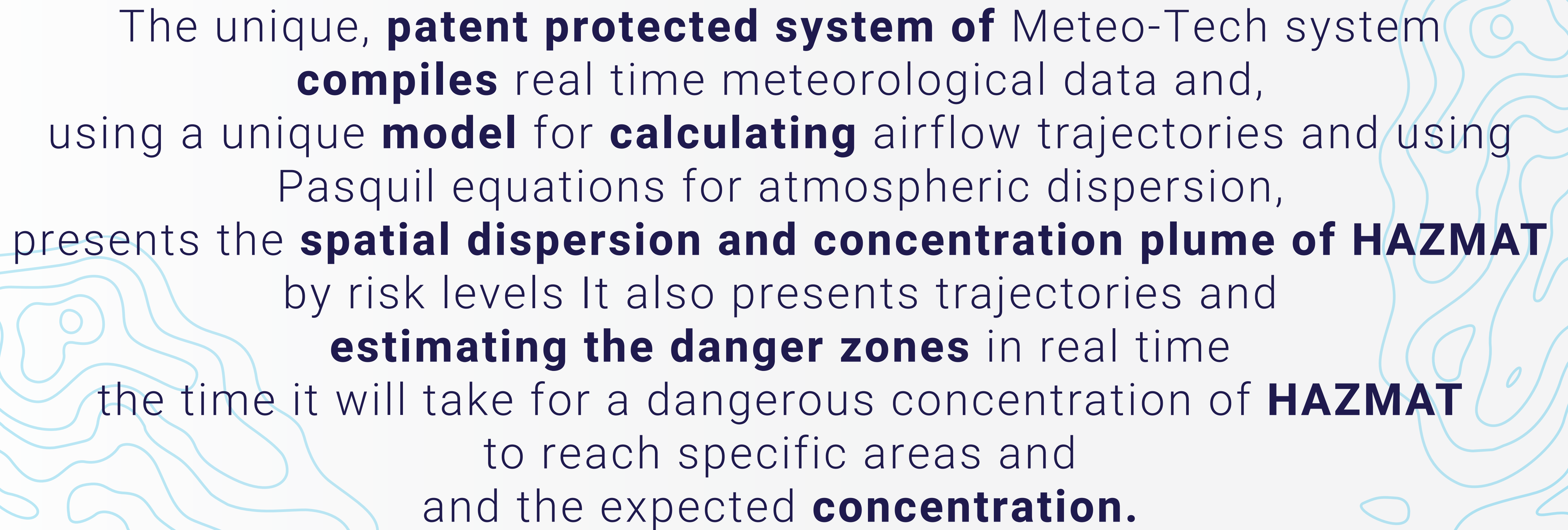


EnviWizard

SENSING FOR LIFE

METEO-TECH INTRODUCES:

Unique system for the real time determination of danger zones in hazardous material emission incidents where the emission site is known



The unique, **patent protected system of** Meteo-Tech system **compiles** real time meteorological data and, using a unique **model** for **calculating** airflow trajectories and using Pasquill equations for atmospheric dispersion, presents the **spatial dispersion and concentration plume of HAZMAT** by risk levels It also presents trajectories and **estimating the danger zones** in real time the time it will take for a dangerous concentration of **HAZMAT** to reach specific areas and and the expected **concentration.**



WHAT ARE THE STAGES OF THE PROCESS?

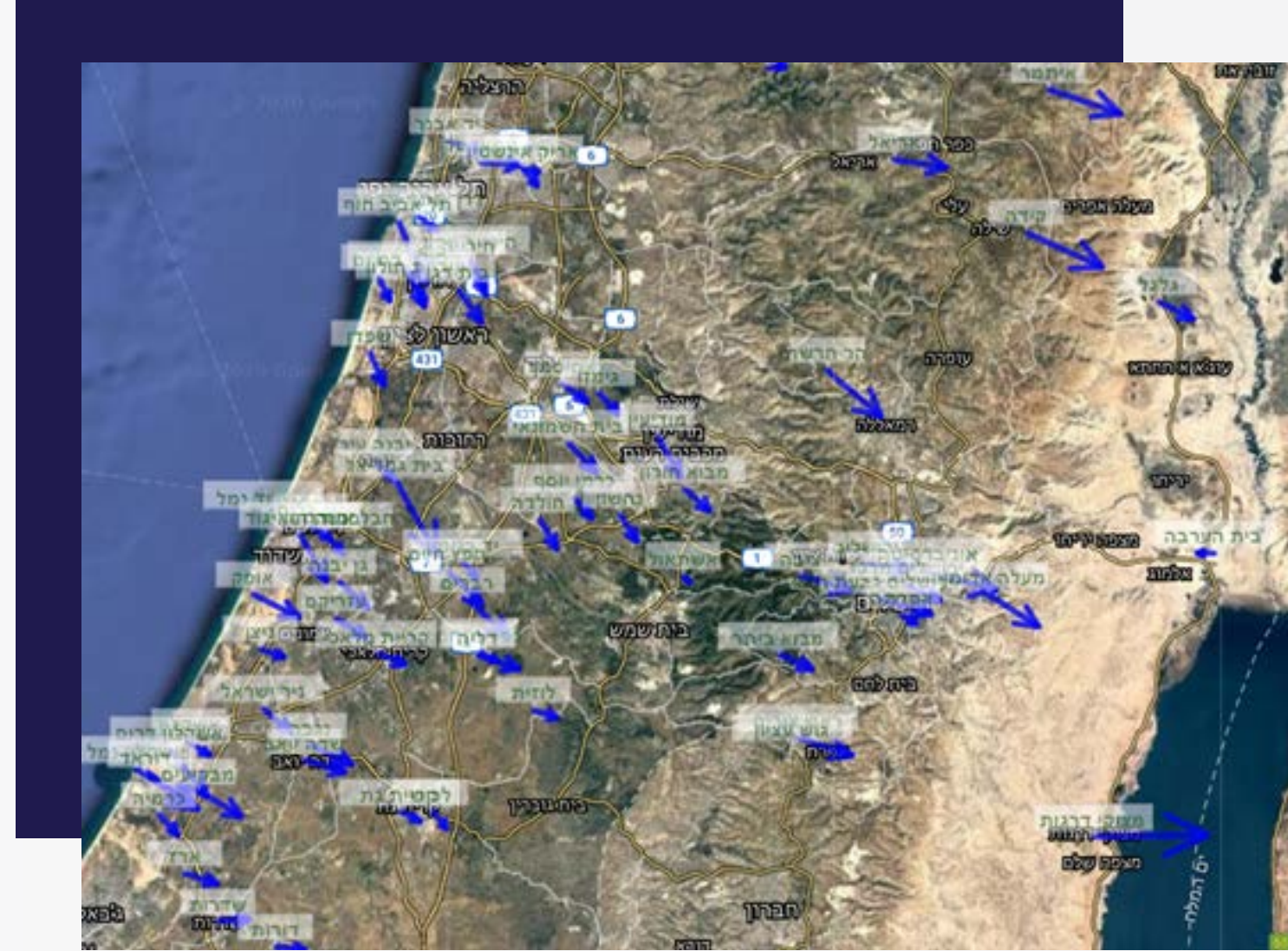


STAGE 1:



A HAZMAT emission report is received.

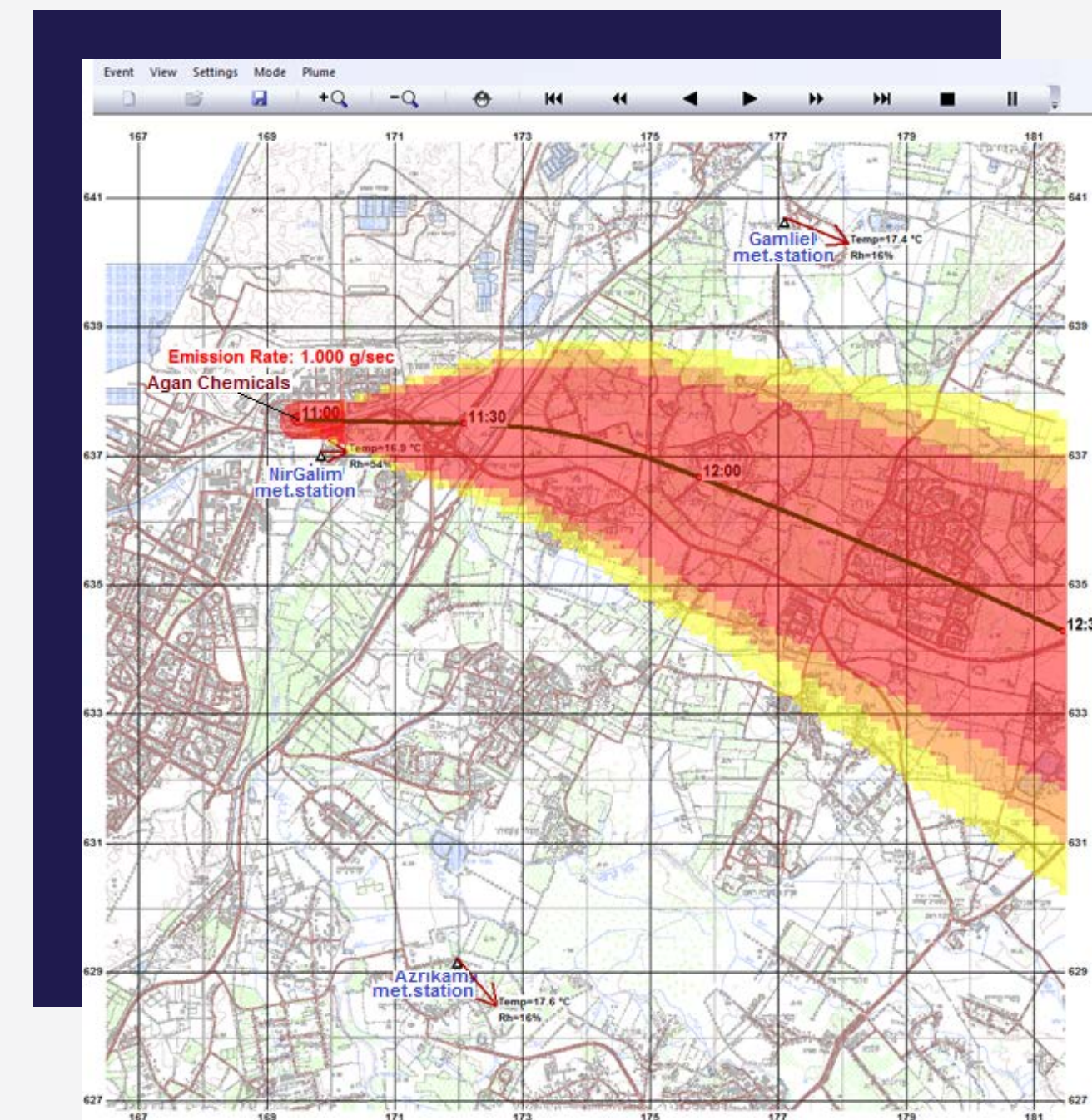
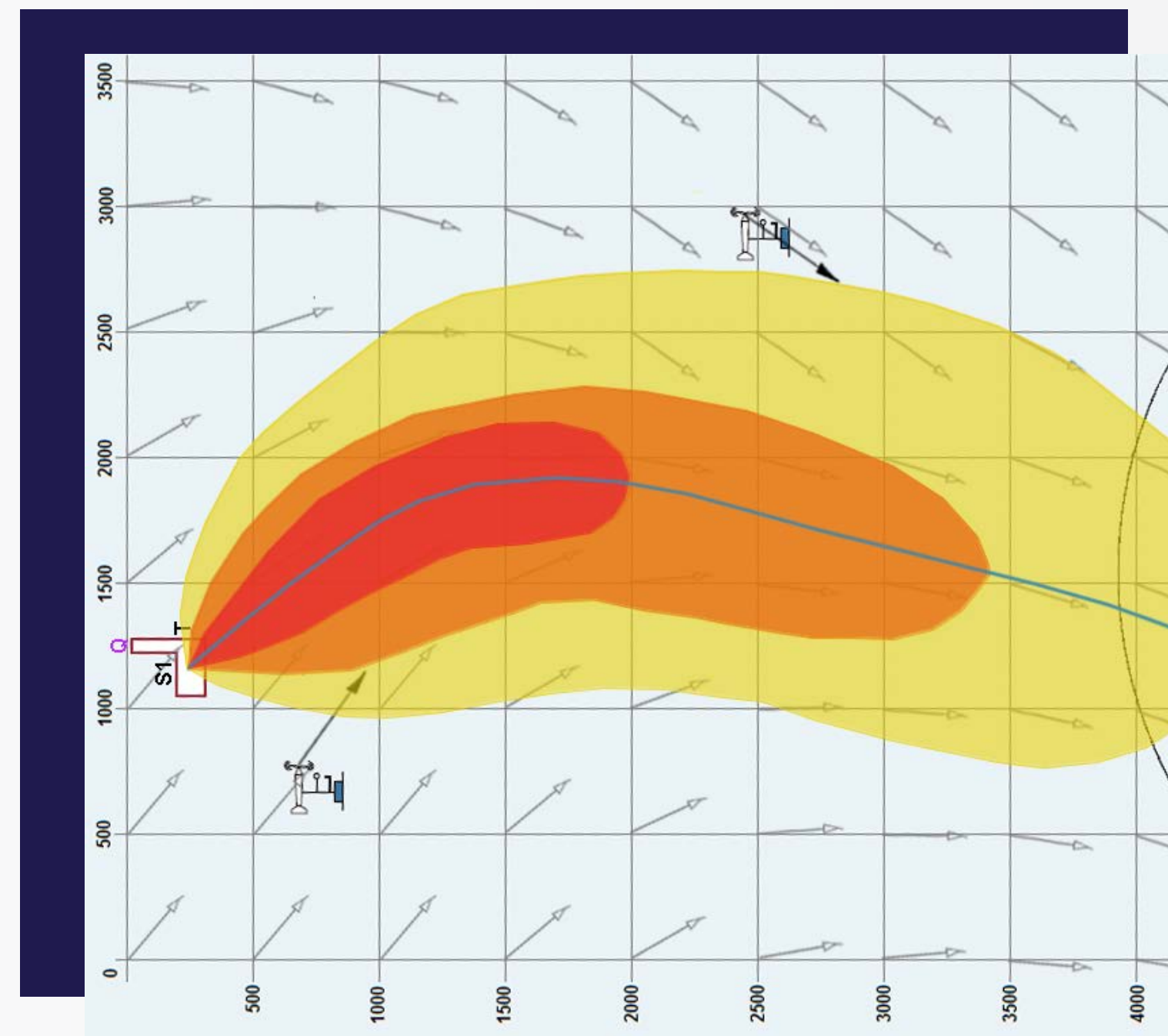
STAGE 2:



The system computes the HAZMAT's central flow axis using **forward integration** based on the meteorological data in real time and the estimated spatial distribution of the HAZMAT in the area using spatial Pasquill equations and based on an initial estimates of the emission rate.

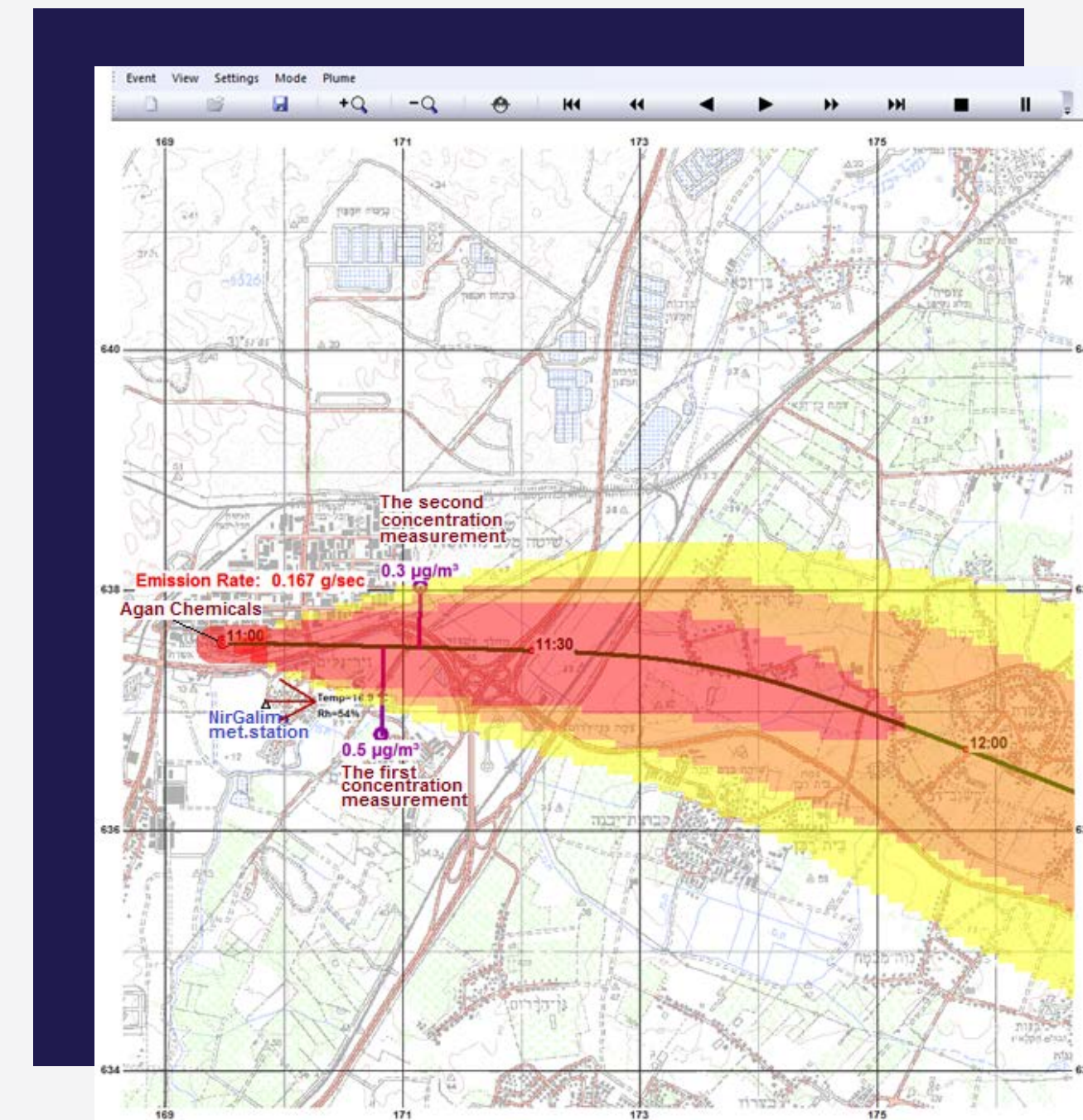
STAGE 3:

Based on the initial data, the system calculates and presents the estimated spatial distribution of the HAZMAT (noting the central dispersion axis) and determines the danger zones according to PAC values.



STAGE 4:

The system receives reports from teams on the site regarding measured local concentrations and updates the spatial distribution of the concentration and the the emission rate (based on updated meteorological data), and presents the updated danger zones, calculated according to PAC in real time!



Now one can evacuate **only** from actual **dangerous specific areas** and thus there is no need for a comprehensive 180° downwind evacuation.

Such evacuation:

Saves time

Prevents waste of resource

Enables more effective evacuation

Saves lives!

The background of the slide is a light blue topographic map with contour lines. A central horizontal brushstroke in a darker blue color contains the text.

HOW DOES THE SYSTEM DO IT?

The background of the slide features a light blue topographic map with contour lines, positioned on the left and right sides, framing the central text.

“KNOW FROM WHERE YOU COME, AND WHERE YOU ARE GOING”

(Mishna, Pirkei Avot 3a)

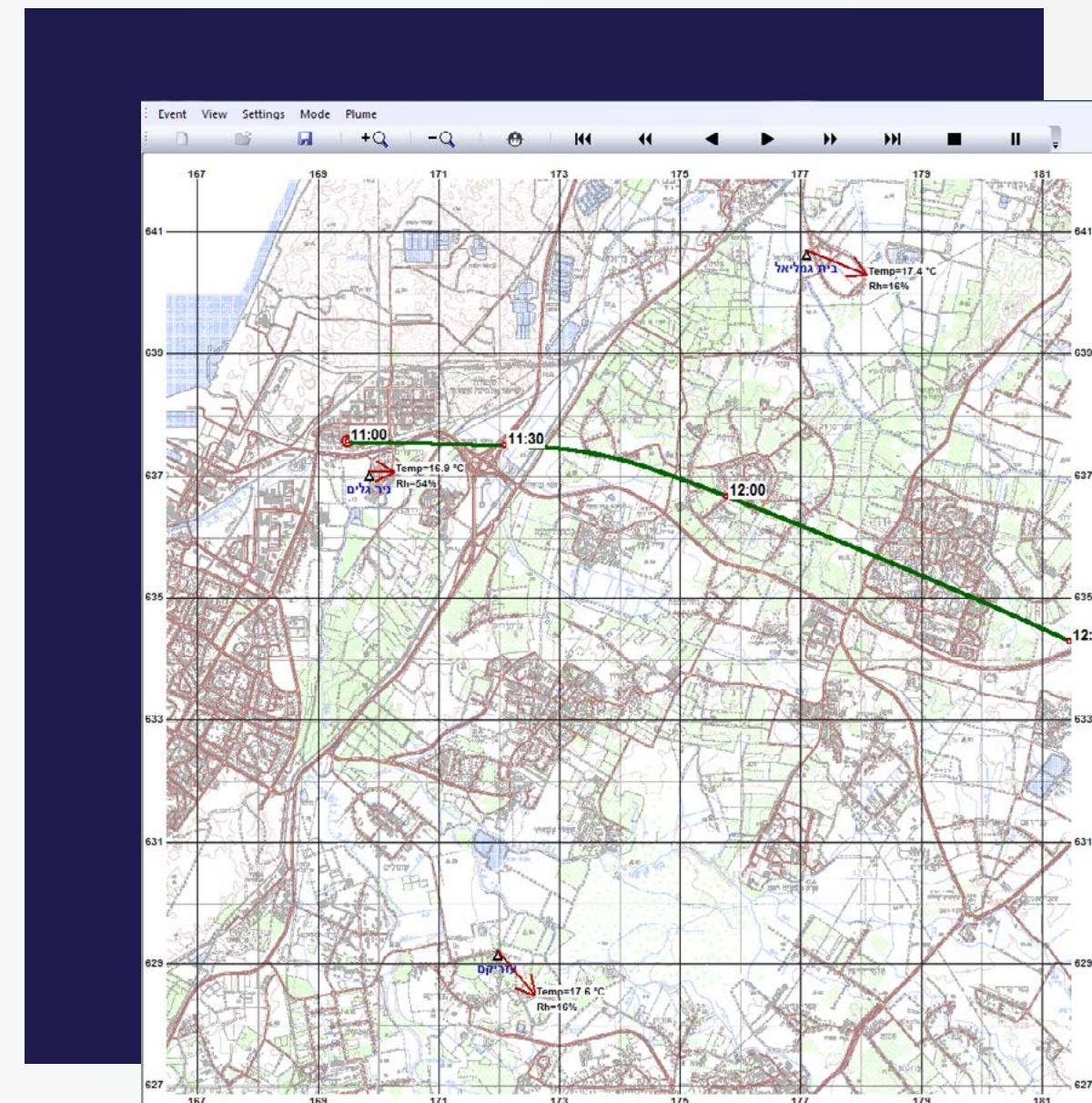


The system operates continuously and is connected to **all available meteorological stations,** 24/7, compiling wind data (direction and speed). In Israel, the system is connected to ~200 meteorological stations.

$$V_x(k,t) = \frac{[V_{x1}(t)dx_1^{-b} + V_{x2}(t)dx_2^{-b} + \dots + V_{xm}(t)dx_m^{-b}]}{(dx_1^{-b} + dx_2^{-b} + \dots + dx_m^{-b})}$$
$$V_y(k,t) = \frac{[V_{y1}(t)dy_1^{-b} + V_{y2}(t)dy_2^{-b} + \dots + V_{ym}(t)dy_m^{-b}]}{(dy_1^{-b} + dy_2^{-b} + \dots + dy_m^{-b})}$$

The system consolidates the meteorological data relevant to the incident time and location and applies a model that provides a minute-by-minute calculation of the wind field using Cressman equations – direction and intensity – in the relevant area for every required geographical point, enabling the system to determine the central axis of pollution flow.

The system computes the HAZMAT central flow axis through the air using **forward integration** from the emission source, based on real time wind data.



After finding the pollutant central axis, the system calculates the **spatial concentration distribution** using Pasquill formula and the **estimated initial emission rate** aiming to evaluate its **concentration and arrival time** to the populated area.

$$C(x, y) = \left(\frac{Q}{U\pi\sigma_y} \right) \exp \left[-\frac{y^2}{2\sigma_y^2} \right]$$

C – Pollution concentration in the air

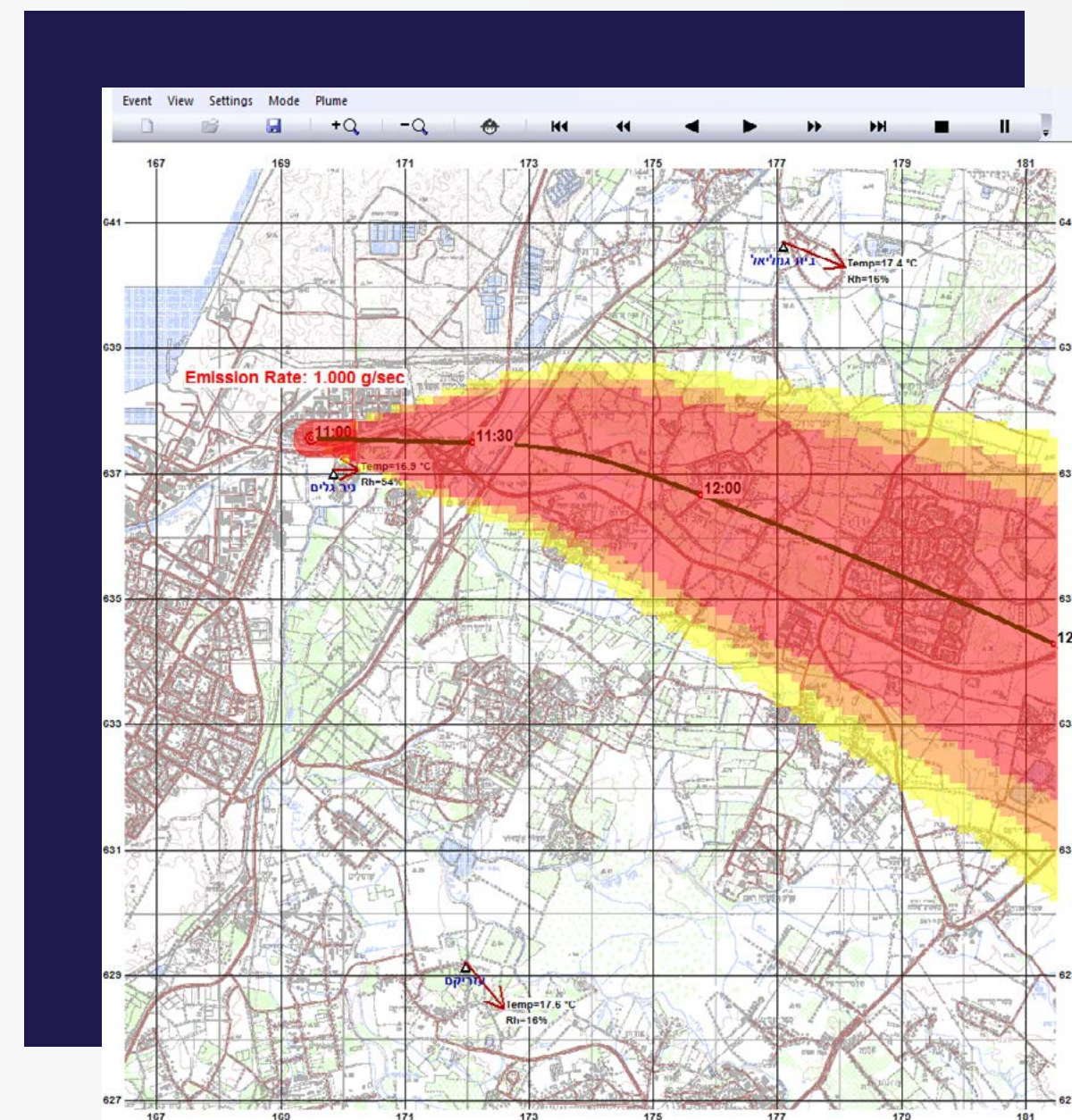
Q – Pollutant emission rate

U – Wind intensity

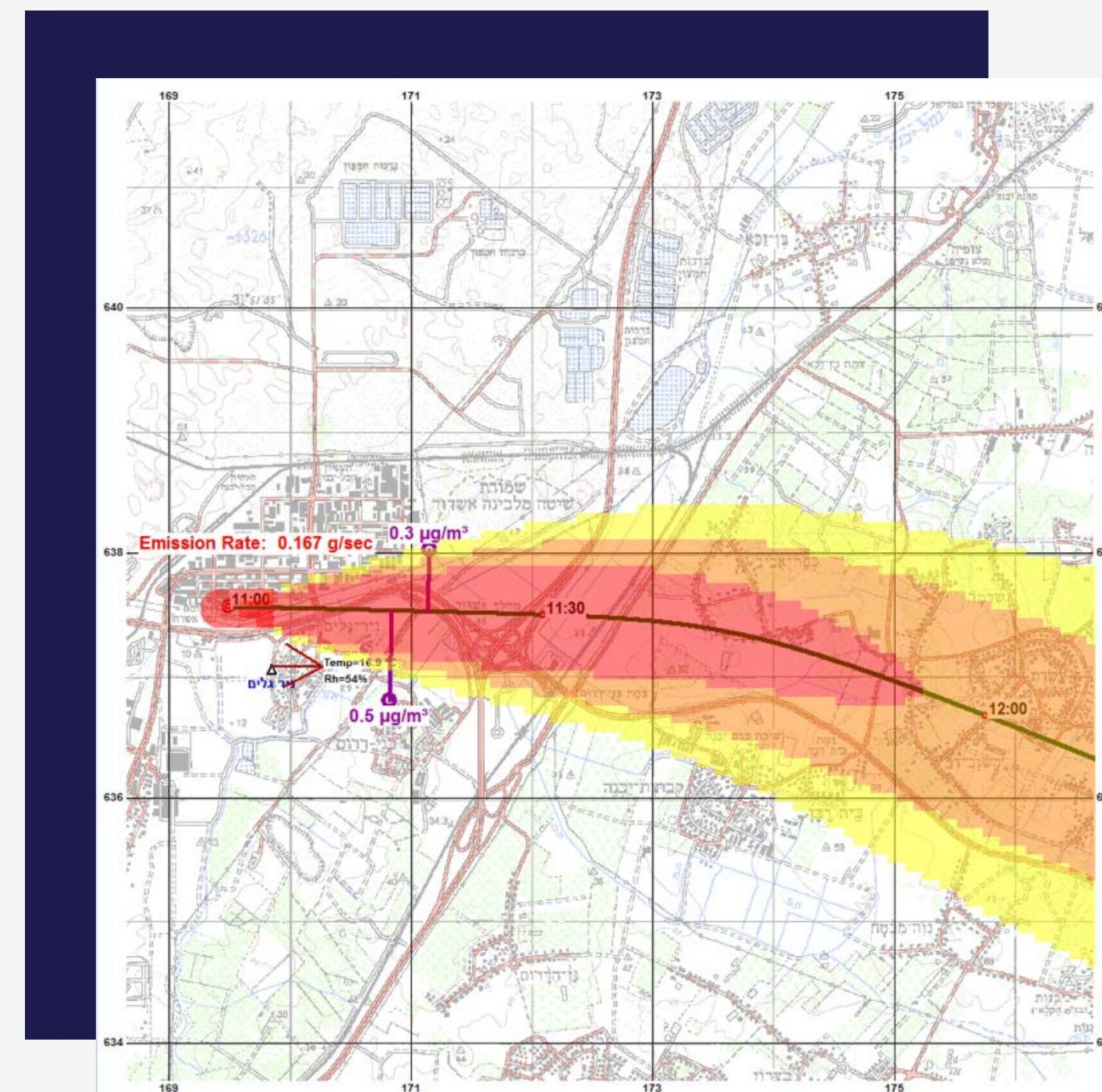
Y – Distance from the main axis of Turner

σ_y – Turner

The system displays the **potential concentration of the HAZMAT plume which is** calculated according to the estimated emission rate, and thus presenting the **danger** zones according to PAC values and is also able to estimate HAZMAT **arrival time to and concentrations in** the populated areas.



As the Rescue forces arrive to the scene, of the event, they measure **real time pollutant concentrations** and, accordingly, **the system updates** the calculations and displays the updated **concentration spatial** distribution map and the estimated **time** of HAZMAT arrival to the populated area.





The real time plume calculation enables
Responsible and Informed Decisions
regarding population evacuation.

Summary:

The ENVIWIZARD 2 provides a **rapid and real time analysis** of unusual HAZMAT emissions from a **known source** and enables:

- Real time display of **HAZMAT spatial concentration and progress rate** in the air
- Determination of the **populated areas** that the HAZMAT will reach
- **Determination of the time** at which the HAZMAT reach the populated areas.

ENVIWIZARD 2 ADVANTAGE OVER ALOHA:

The ENVIWIZARD 2 calculation method has the following advantages compared to the ALOHA calculation method:

Aloha defines the air course based on wind data **compiled from just one meteorological station**

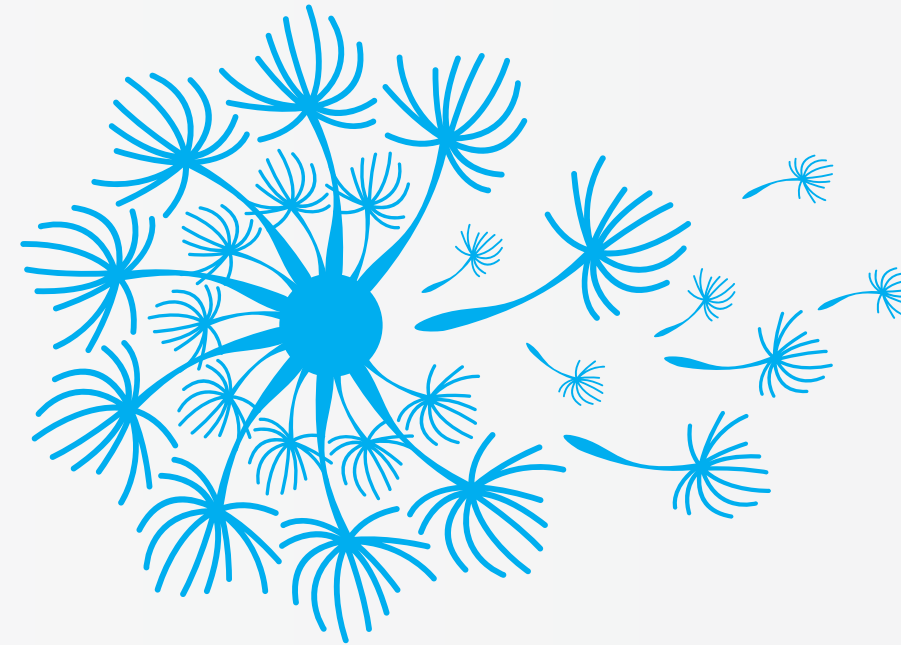
- The ENVIWIZARD 2 bases its calculation on an interpolation of wind data concurrently measured **at all meteorological stations in the analyzed zone.**
- The ENVIWIZARD 2 is a **dynamic system that enables the use of concentration metrics measured by the emergency teams in the field and execution of a rapid, real time calculation whenever new data is given.**
- As a result, the ENVIWIZARD 2 provides a **more accurate and true** picture of the pollutant flow and concentration.

SIMPLE. CONVENIENT. QUICK. ACCURATE!

The system operates online on the internet and can be easily and simply operated by any subscriber in the field or at the office:

- On a Google Maps map
- Using Google Chrome and Microsoft Edge
- From any PC or laptop, smartphone or tablet with internet access.





EnviWizard

SENSING FOR LIFE



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