

Use of retro-trajectories to identify the source of an odour

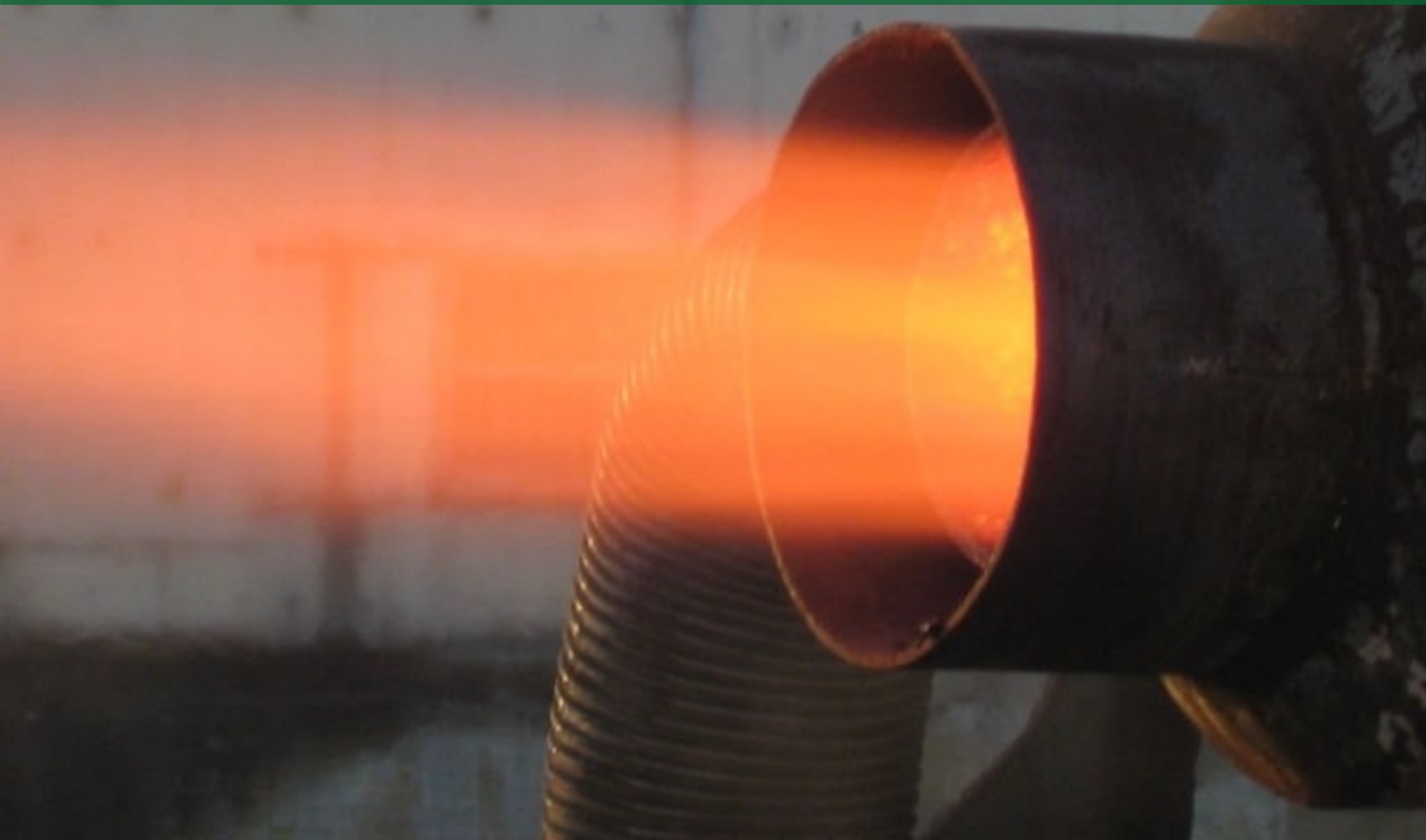


**AM I HAVING ODOUR COMPLAINTS
TOMORROW?**

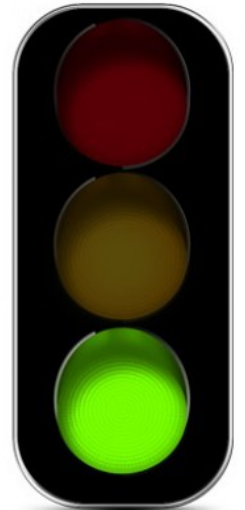
Increase my chemical dosing



**Increase the amount of fuel
burning odorants**



Program my processes



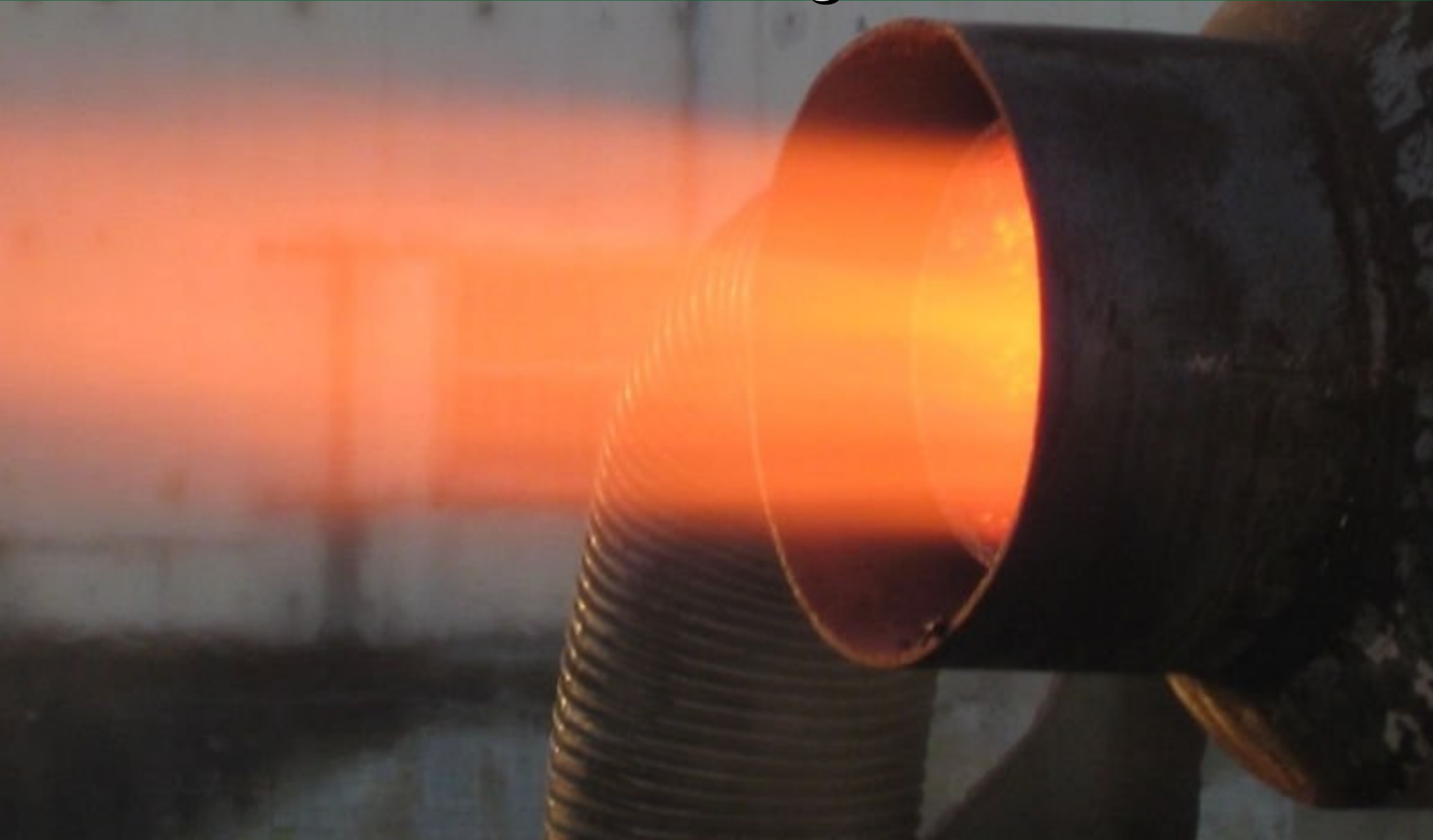


AM I **NOT** HAVING ODOUR
COMPLAINTS TOMORROW?

Decrease ~~Increase~~ my chemical dosing

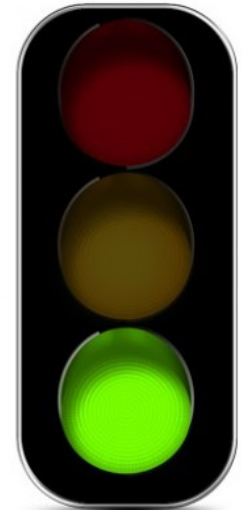


Decrease ~~Increase~~ the amount of fuel
burning odorants



No need to...

Program my processes

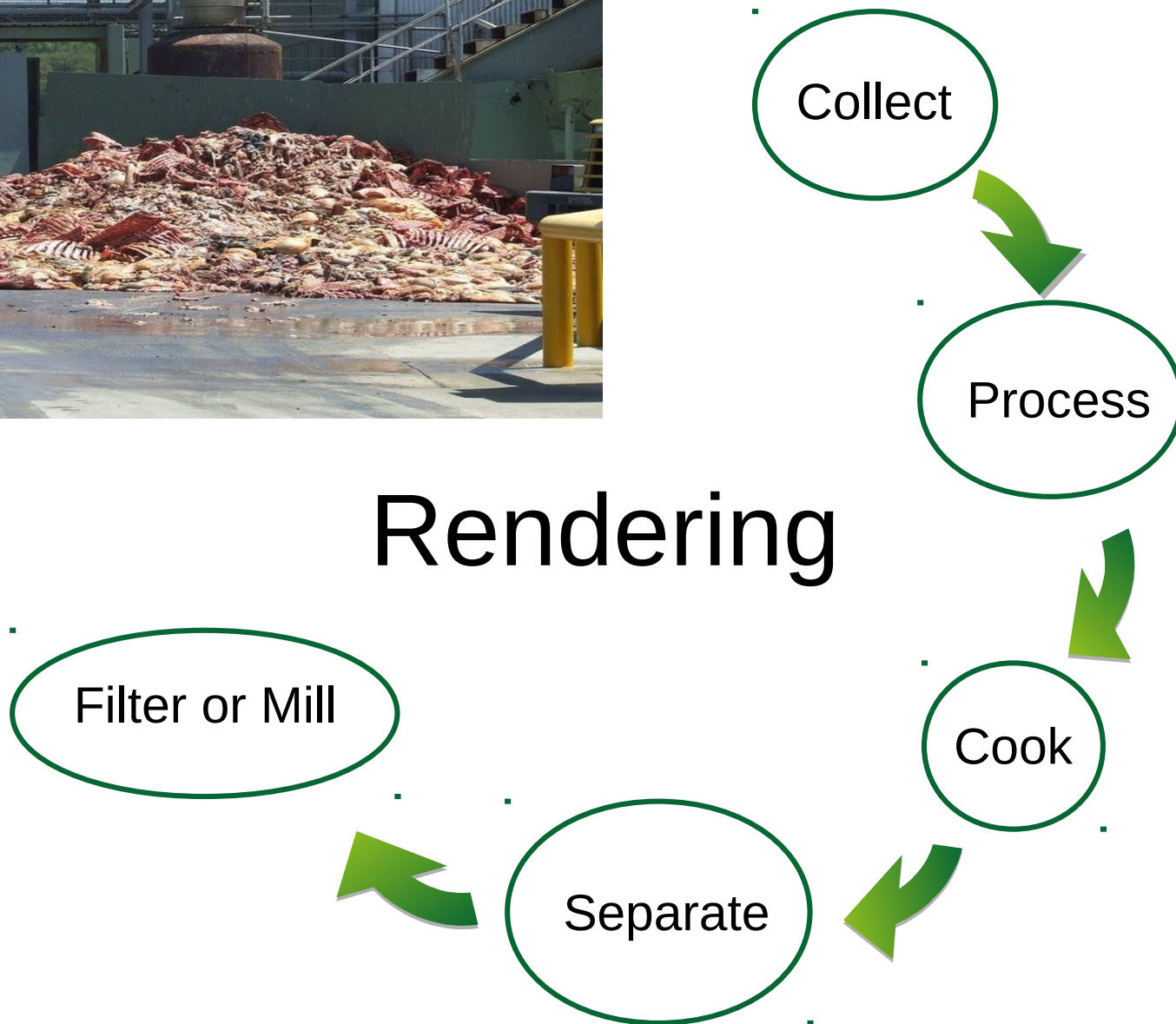


Case Study 1. PROLOR in an animal by-products rendering plant with a previous record of odour complaints.





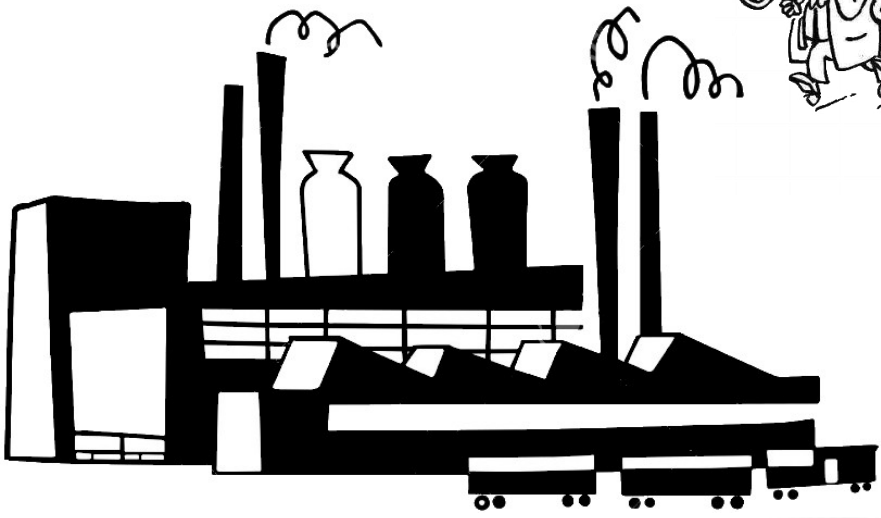
Rendering





Volunteer

COMPLAINTS!!



91 COMPLAINTS 2013



2013



A YEAR AFTER

PrOlor



The background image shows an industrial facility with large cylindrical tanks. A worker in a white hard hat and brown jacket is visible on the left, looking towards the tanks. The sky is blue with scattered white clouds. The tanks are metallic and have various pipes and valves attached. A blue corrugated metal railing is visible in the foreground.

TRIPPLICATES FOR EACH SOURCE

**DETERMINATION OF ODOUR
CONCENTRATION EN 13725**



PrOlor is based on
WRF+CALMET+CALPUFF

Cluster LINUX
>30 processors
>48 Gigas RAM
and scalable!!



COMPARATIVE DATA

2.1 ou_E/m³

	Complaint		
Yes	No	✘	Odour + Non-odour Coincidence
	Yes		
No	No	Non-odour Coincidence	
	Yes	✘	

PERFORMANCE OF PROLOR PREDICTIONS AT DIFFERENT HOURLY INTERVALS REGARDING THE INCIDENTS RECORDED

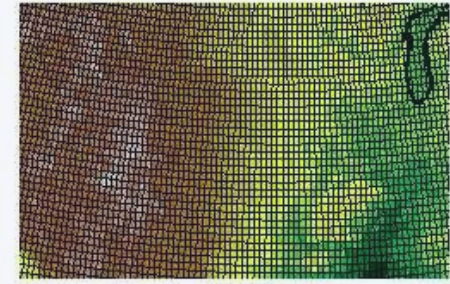
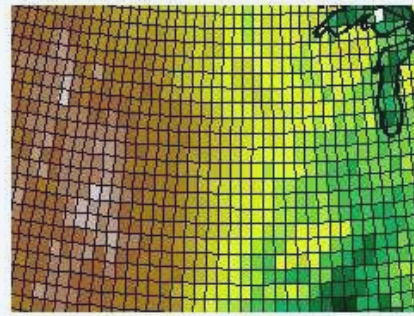
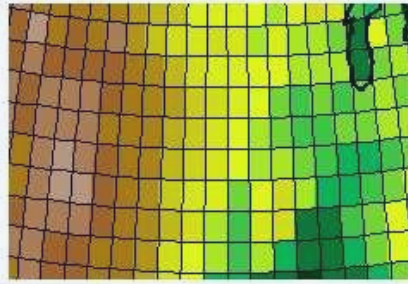
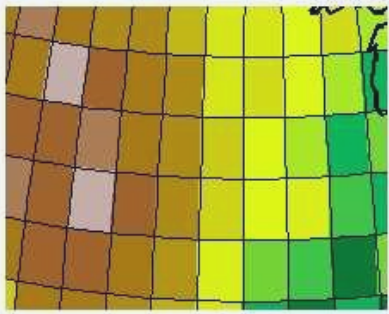
2.1 ou_E/m³

	Odour Coincidence	Non-odour Coincidence	Odour + Non-odour Coincidence
At the exact time of the incident recorded	23.5%	97.7%	96.6%
Deviation of ±1 hour	35.3%	100%	99.0%
Deviation of ±2 hours	41.2%	100%	99.1%

PERFORMANCE OF PROLOR PREDICTIONS AT DIFFERENT HOURLY INTERVALS REGARDING THE INCIDENTS RECORDED

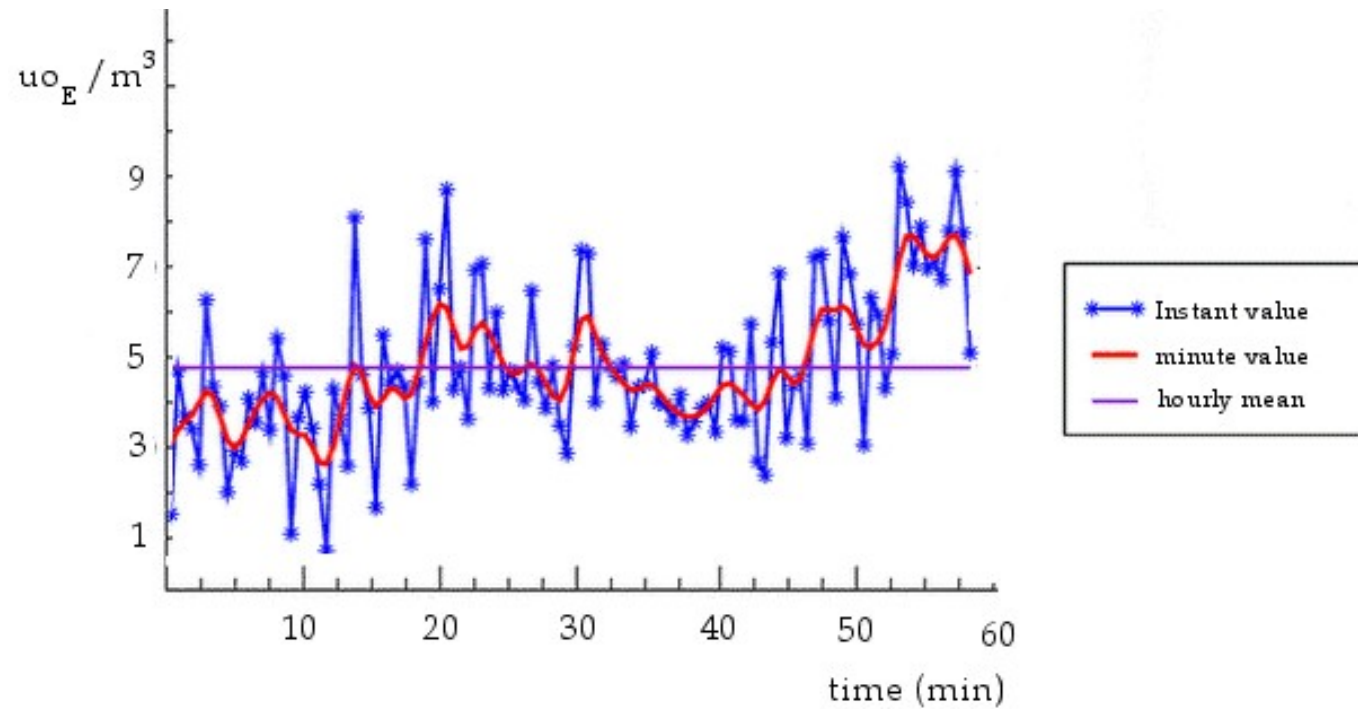
$> 0 \text{ ou}_E/\text{m}^3$

	Odour Coincidence	Non-odour Coincidence	Odour + Non-odour Coincidence
At the exact time of the incident recorded	4.55%	98.1%	73.2%
Deviation of ± 1 hour	12.1%	100%	76.6%
Deviation of ± 2 hours	17.9%	100%	78.1%





WE INCREASED THE WRF RESOLUTION

WE APPLIED A PEAK TO MEAN RATIO



COMPARATIVE DATA

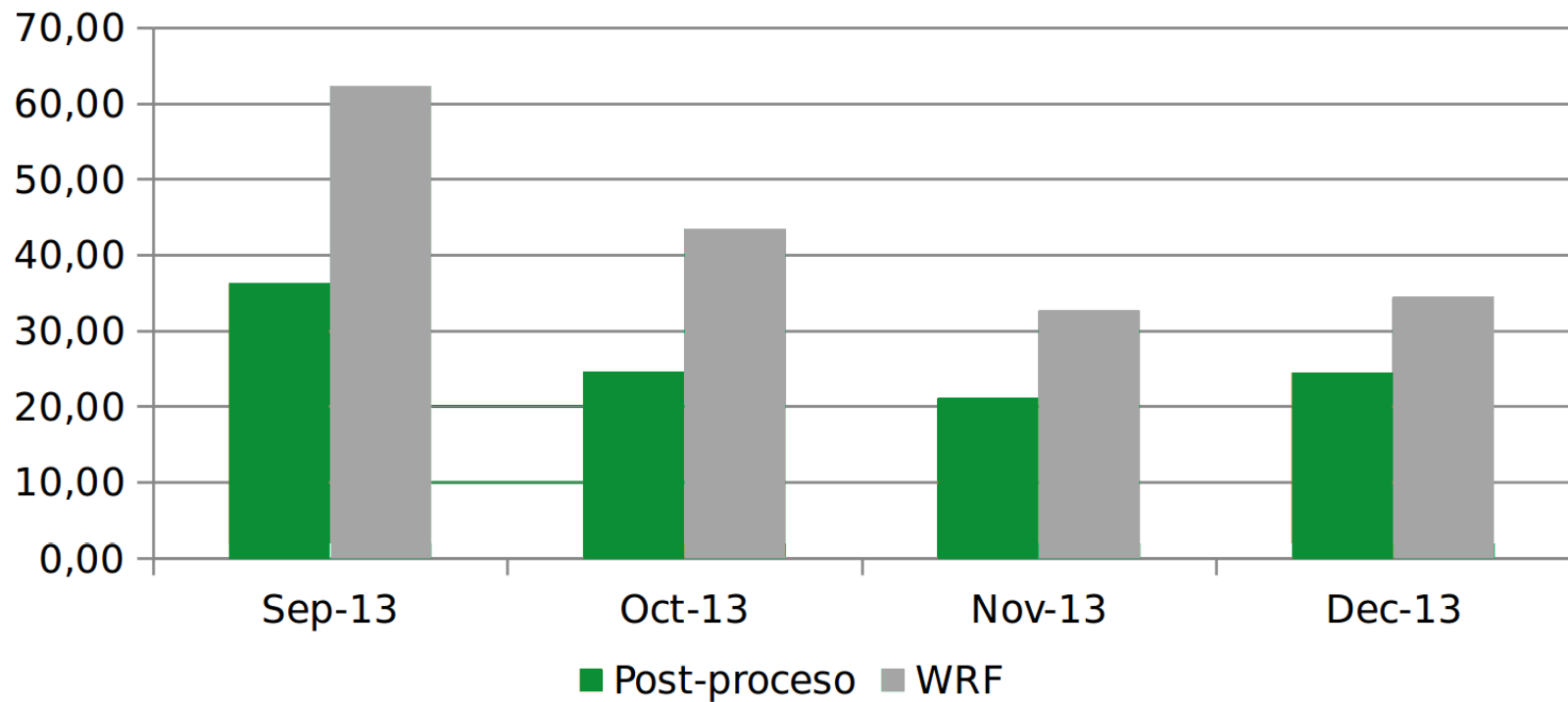
		$> 0 \text{ ou}_E/\text{m}^3$	
<p>Yes</p>	<p>No</p>	<p>✘</p>	
	<p>Yes</p>	<p>Odour Coincidence</p>	<p>73,5%</p>



Work in progress

POST-PROCESS OF METEOROLOGICAL DATA

Deviation



Animal
By-products
Rendering plant

Without
PrOlor



200.000 €/year in
natural gas

With
PrOlor



65.840 €/year in
natural gas



Savings of
134.160 €

Case Study 2. Use of retro-trajectories to identify the source of some odours



Partnership with NASAPP



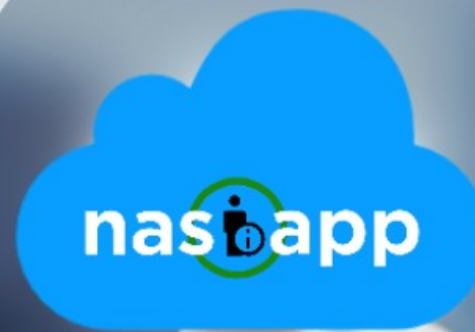
- Mapas de olor dinámicos
- Información de contaminación por olor en tiempo real
- Configuración de herramientas a medida



- Custom made
- Real-time
- Bidirectional communication PUSH



- Estaciones meteorológicas locales / FTP / API
- Redes - hilos RSS
- Información en tiempo real



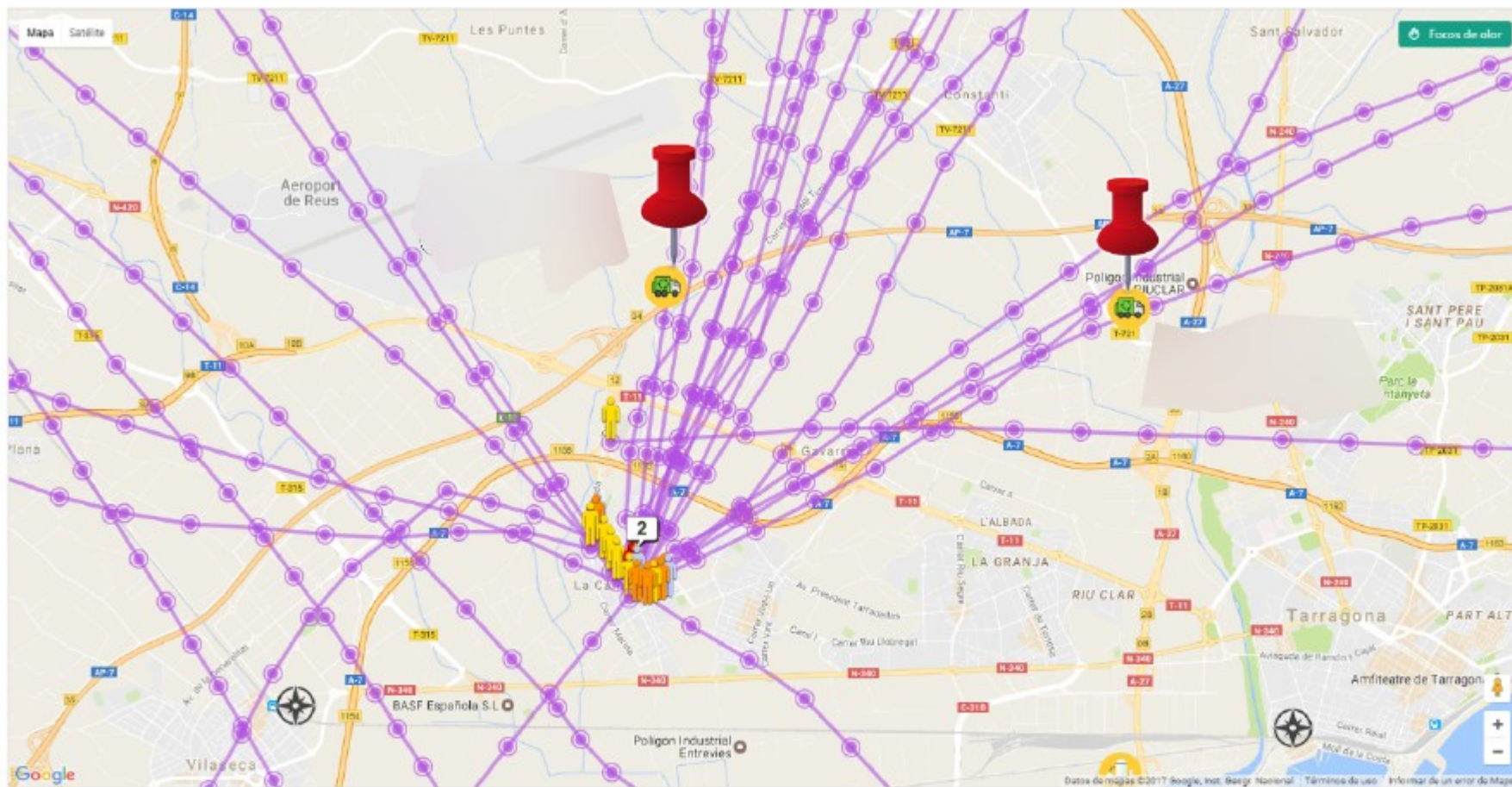
- WRF / CALMET : Modelos de diagnóstico meteorológico acoplados.
- CALPUFF: Modelo Lagrangiano de dispersión
- TRAJ2D: Modelo 2D para el trazado de retrotrayectorias desde los datos de vientos del modelo CALMET.

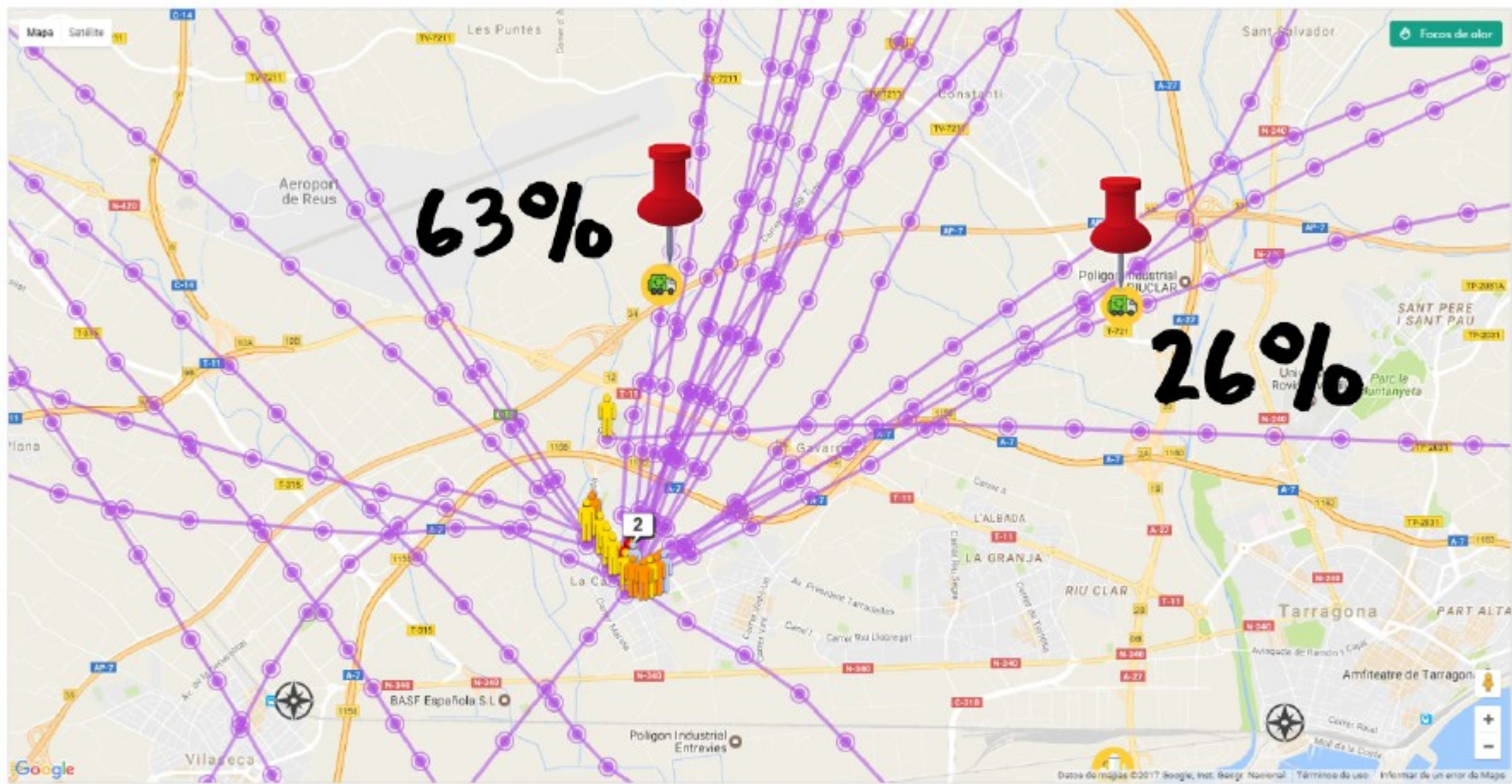


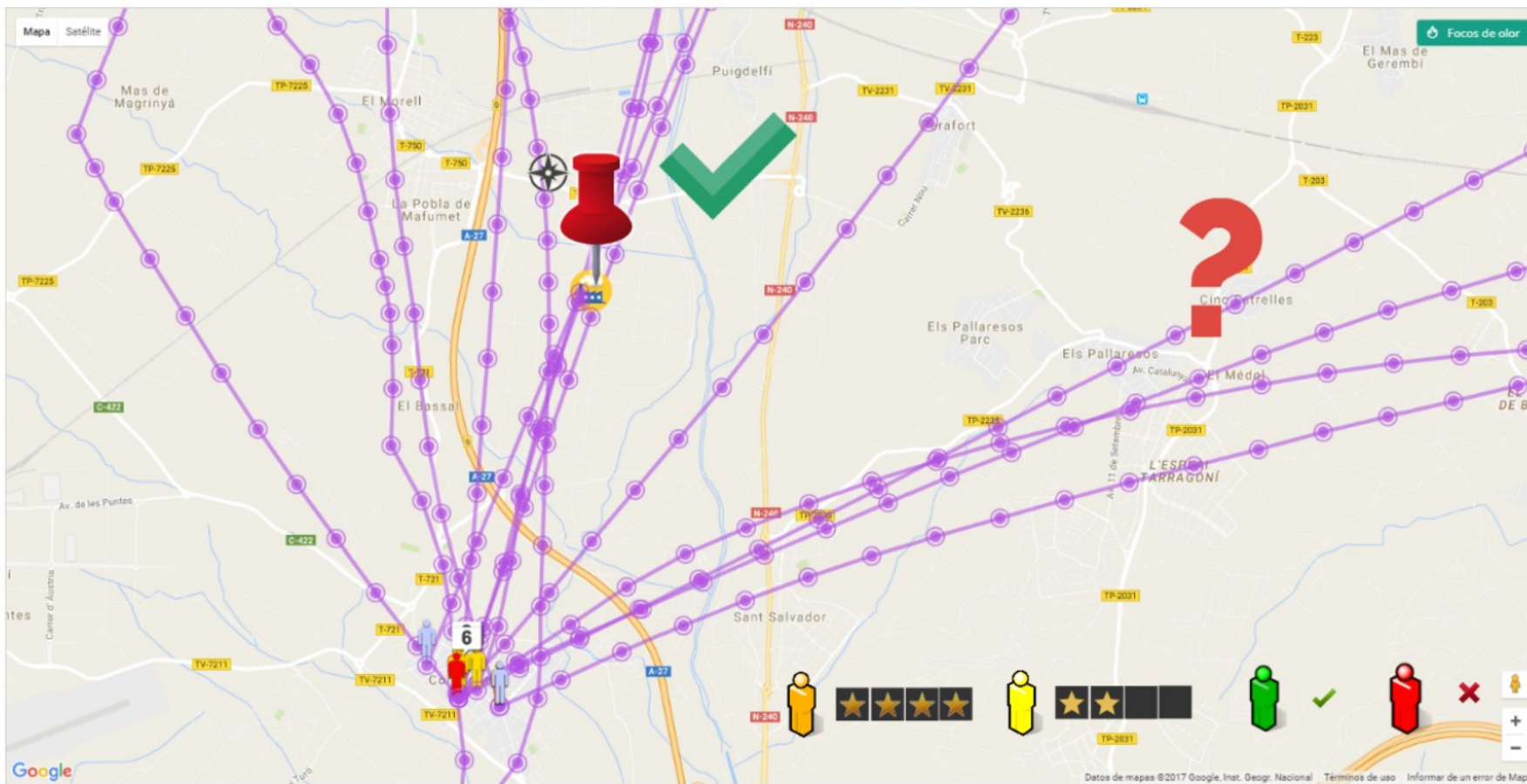
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- Custom made
- Real-time
- Bidirectional communication
PUSH







Empower your image



Good image



Smart industry



Environmentally responsible



CONCLUSIONS

- PROLOR forecasts odour incidents several days before they happen.
- In August 2014 a Rendering plant implemented a pilot study with the software PROLOR. If this plant had optimized its process with PrOlor, it would have saved 67% of fuel expenses.
- PROLOR was able to forecast adequately in a 73,5% of the incidents.
- PROLOR + NASAPP. In 2017, retro-trajectories were able to identify the source of odour complaints from two Urban Waste Companies.



Thank you!

www.prolor.net

Carlos N. Díaz Jiménez
carlosdiaz@prolor.net