

Airborne Plume Tracking

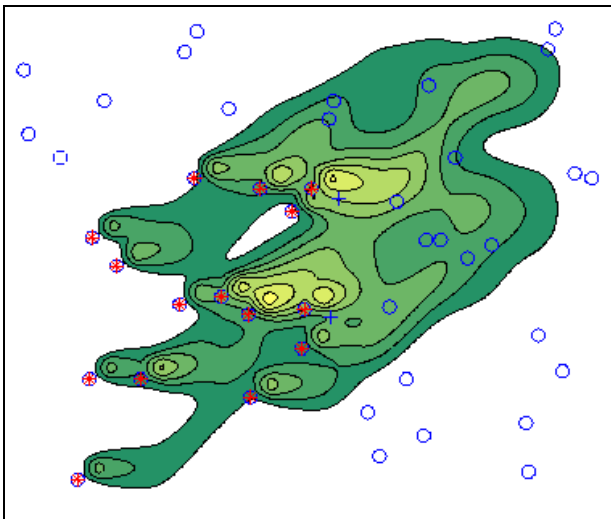
Project description

INTRODUCTION

The release of a chemical, biological, or nuclear substance into the air is an area of enormous public concern. Needless to say, to minimize casualties it is very important to be able to quickly locate the source of a release and shut it down. However, natural effects like dispersion and wind turbulence can make it very difficult to determine this source. Even when a very dense grid of detectors is deployed, the complexity becomes unmanageable when multiple release points are present, or when the release points are mobile.

THE APPLICATION

By representing dispersion, wind turbulence, multi-target and mobile target process models in a PQS, we were able to achieve very high levels of source localization and plume tracking accuracy, with sustainable improvements of at least 40% over conventional methods. Not only does this application of PQS outperform traditional methods in locating the sources of multiple releases, it is also exceptionally adept at detecting the future path of the plumes.

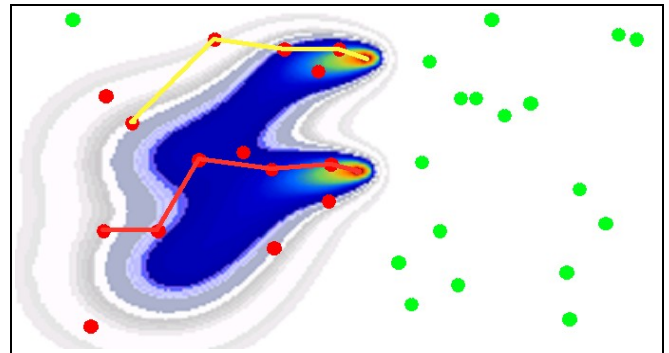


While relying on well known algorithms for airborne agent behavior, this high level of accuracy for multiple release sources and extremely noisy environments is achieved by using the dynamic process properties of PQS. This solutions enables

more accurate detection of release sources in both confined and open areas, while predicting how and where the plume will move in the future, potentially saving thousands of lives.

PROCESS QUERY SYSTEMS

A PQS is a generic correlation engine that puts the focus on the dynamics of an environment, instead of using traditional static methods. By describing how things change over time, a PQS is able to achieve previously unseen levels of detection and correlation in environments too complex for conventional techniques.



FUNCTIONAL SPECS

This PQS application was implemented using the following system requirements:

- PQS platform (either TRAFEN or C-TRACK)
- Pentium 4 or better
- SPARC III or better
- 512 MB RAM
- Java 1.4 or better
- MS Windows XP/2000, Linux 2.6, Solaris > 8
- Sensor array: arbitrary grid of binary (on/off) or concentration-measuring sensors

WOULD YOU LIKE TO KNOW MORE?

If you would like to learn more about this PQS application, or if you would like to use this functionality in your environment , please contact:

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