

A large version of the DiagSense logo, featuring a dark blue arc with a dot at its peak.

# DIAGSENSE

A BRAIN FOR YOUR SENSORS

February, 2015

# DiagSense Brain

- Diagsense acts as a central nervous system for your sensors.
- Prediction of evolving failures in mechanical systems and pipelines:
  - Acquire data from sensors
  - Learn, analyze and make decisions about abnormalities

**Brain** preforms predictive maintenance to save (down) time and Money



# Benefits and Competitive Advantage

- **Brain Alerts on developing failures** before their formation
- Our technology **characterizes the normal system behavior** rather than abnormal.
- 85% or more **reduction in false alerts** compared to competitors
- Zero misdetections guaranteed
- **Effective performance in transient states:**
  - change of operation and pressure regimes,
  - environmental variables and more
- A **scalable software** without a need to install additional sensors or equipment – we connect directly to SCADA.
- Ability to **acquire and process data from any and all types of sensors**
- **24/7 online operation with no need for calibration** even after unreported changes in the conditions

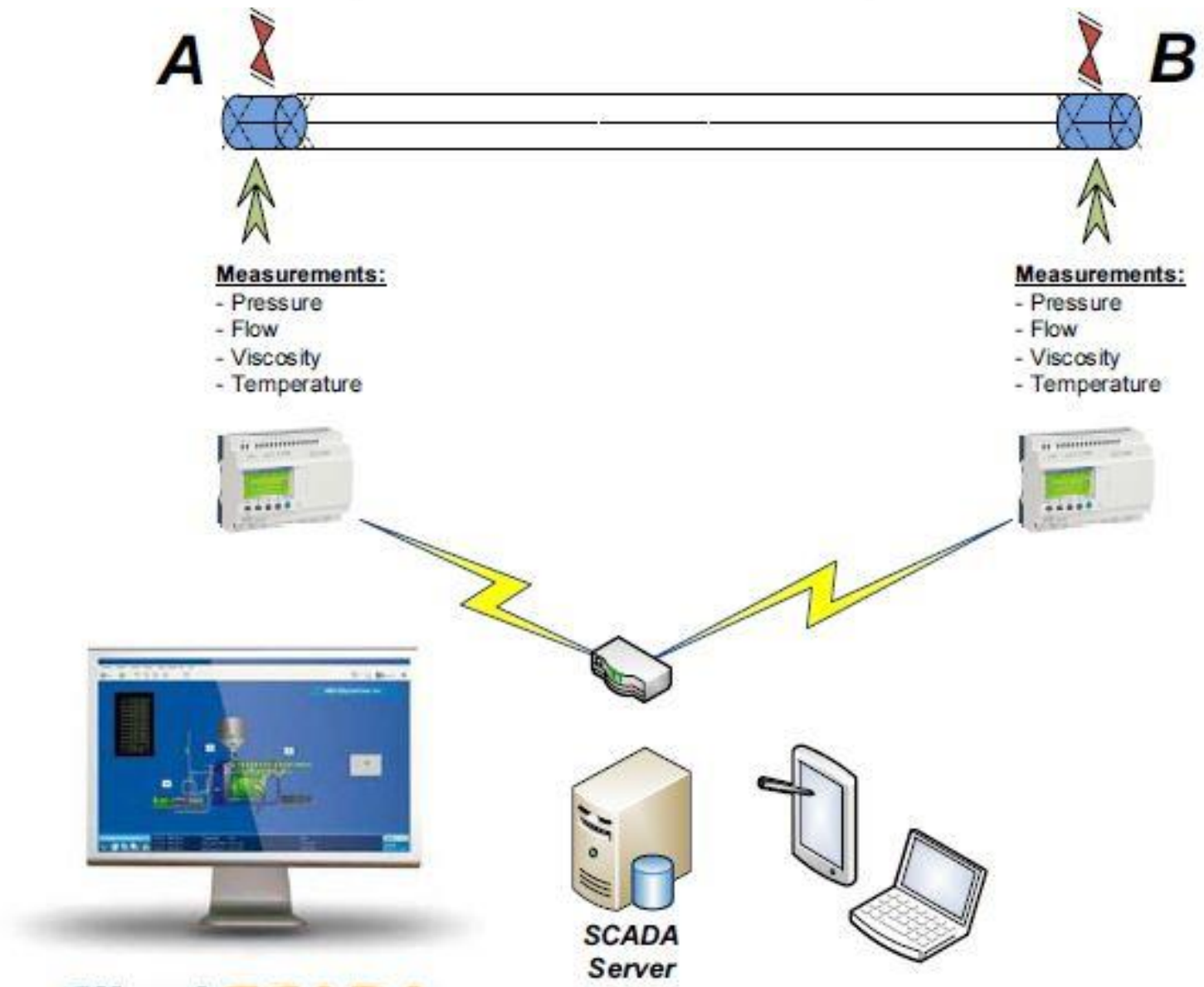
# Typical System Technical Specifications

The raw data coming from the sensors are aggregate at the server, and displayed at the SCADA, DiagSense software for monitoring evolving failures at their early stage, integrated with the SCADA and learn the system behavior at each state.

At real-time DiagSense software will alert on any kind of event, or any kind of deviation from the system normal behavior that the operator wish to receive.

- Schneider Electric Citect SCADA v7.40 SP1 or else.
- OS: Microsoft Windows 2012 R2 64bit
- Server: Dell PowerEdge T320, 2x CPU Intel® Xeon® E-24XX v2 Processors /32GB RAM / RAID5 / PERC controller / SAS 3.5" 15K Hard Drives

# DiagSense Deployment

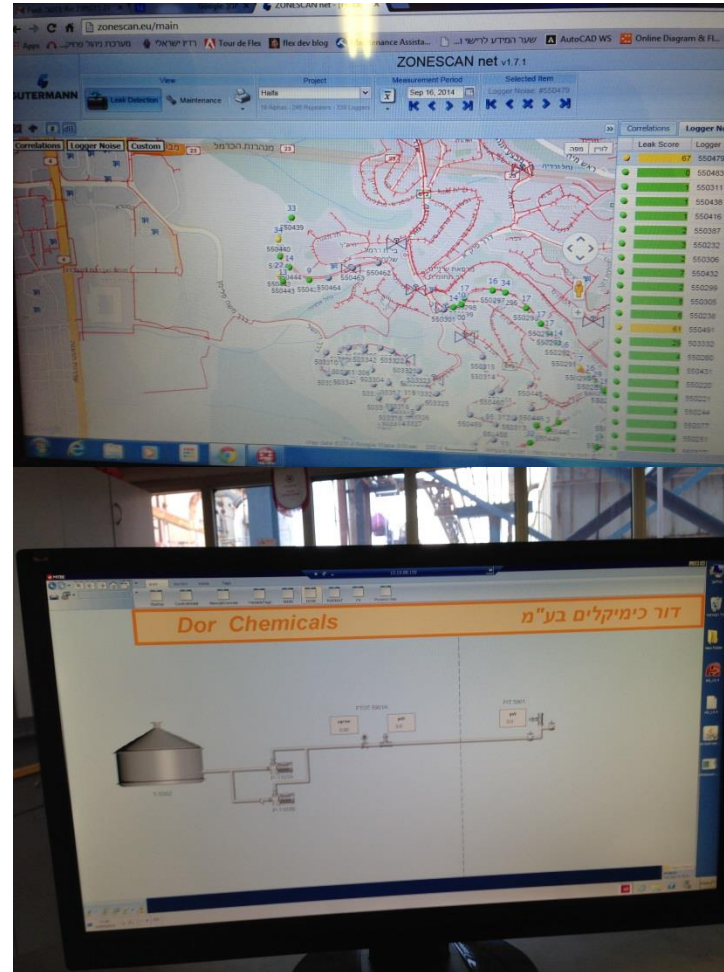




# Deployment at Dor Chemicals

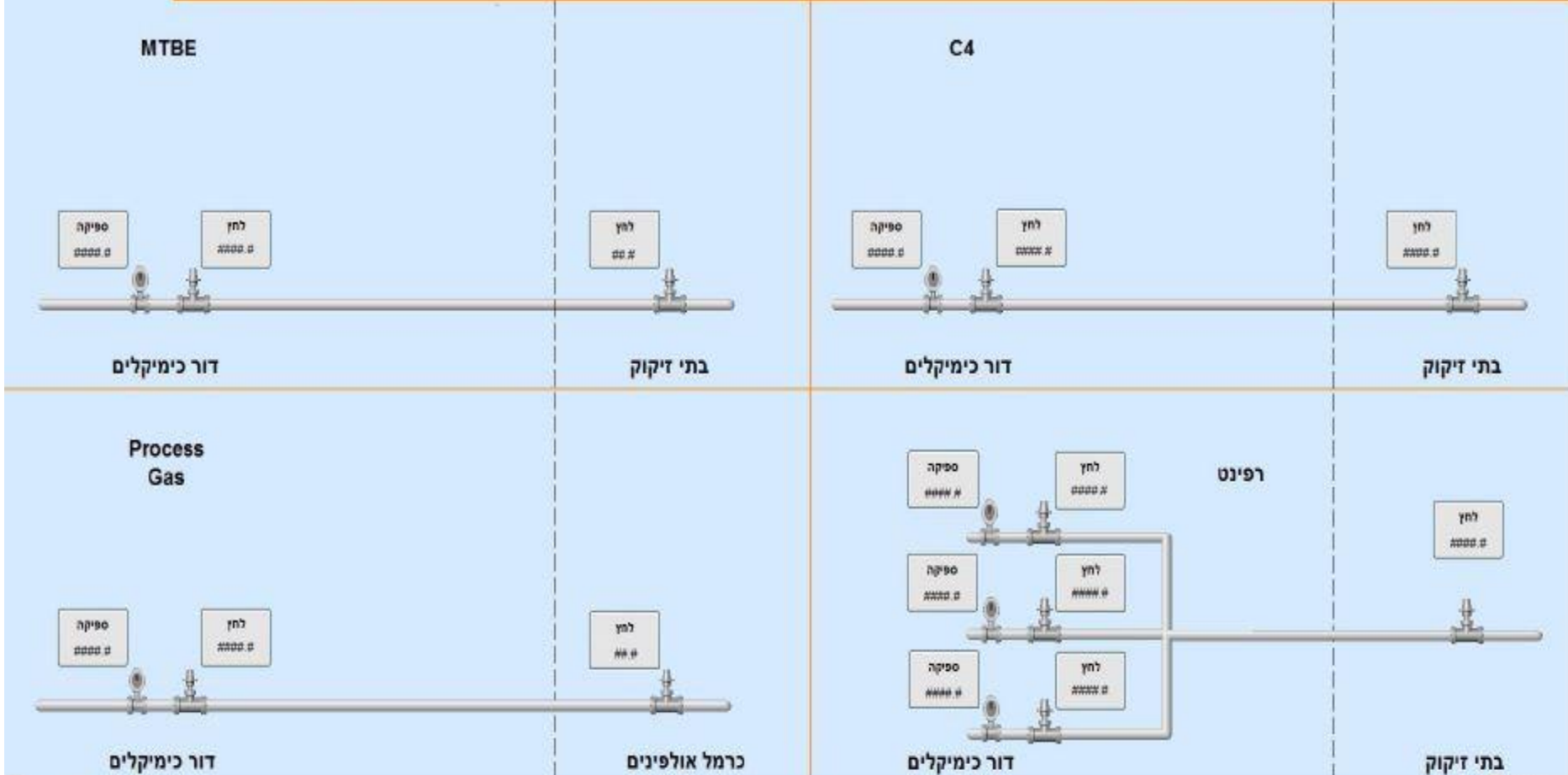


# Deployment at Dor Chemicals



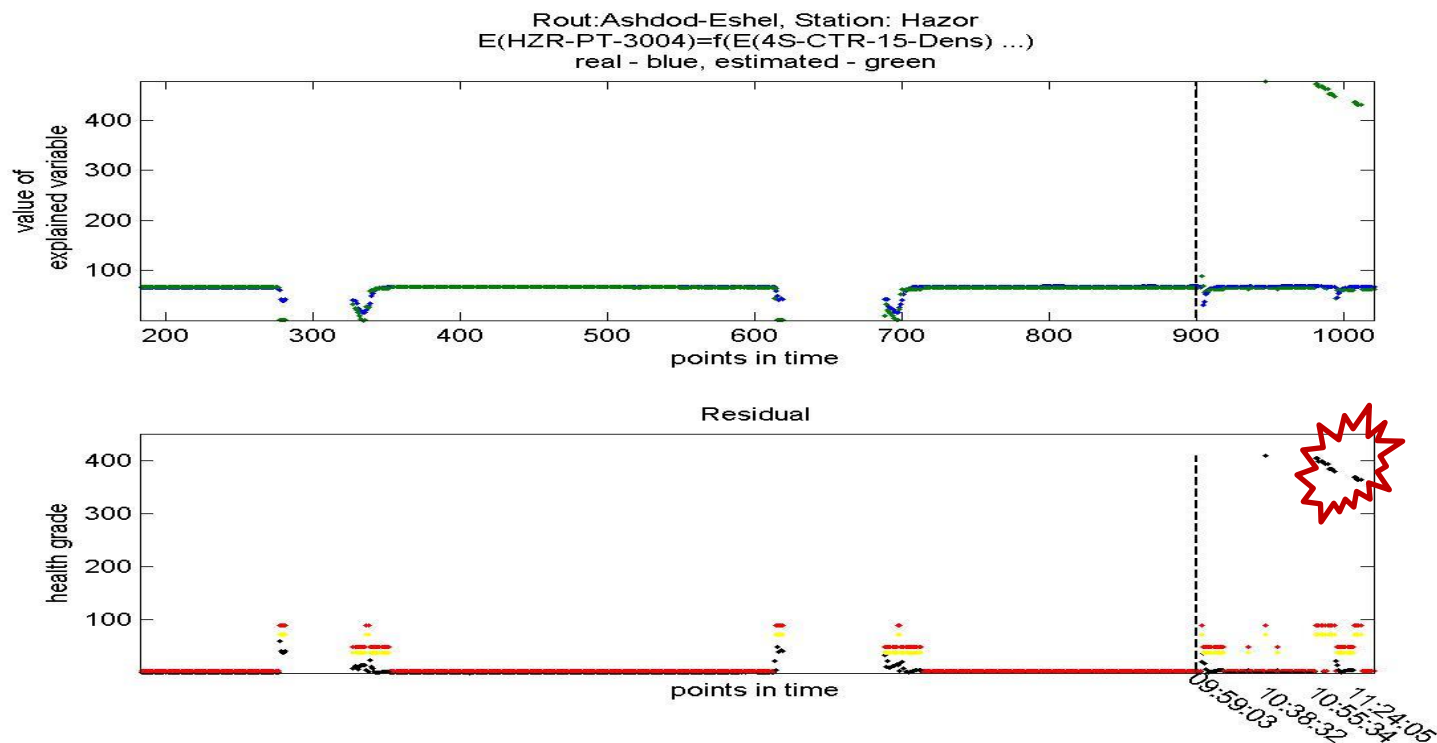
# Dor Chemicals HMI

## Dor Chemicals דור כימיקלים בע"מ

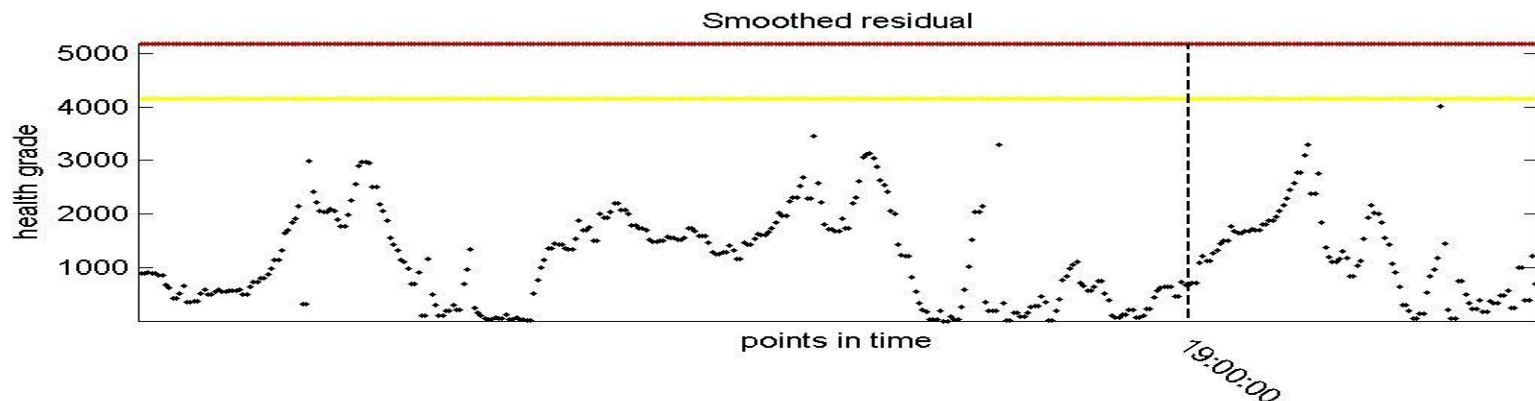
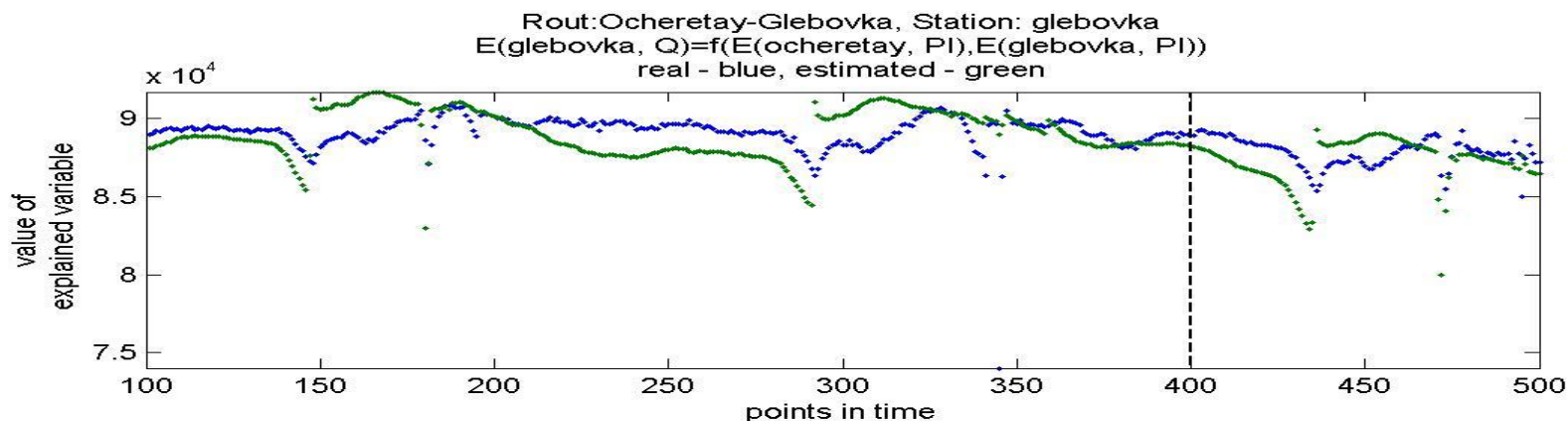




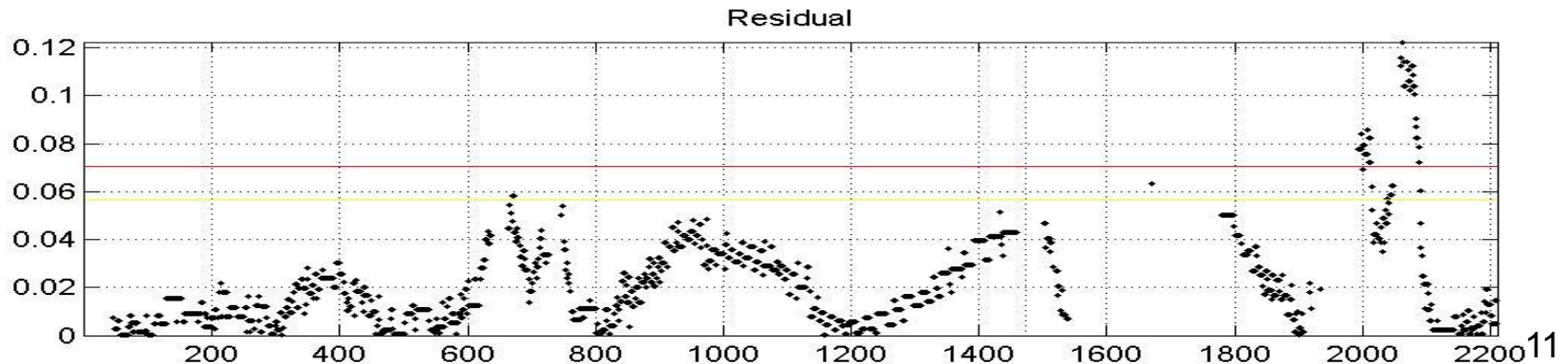
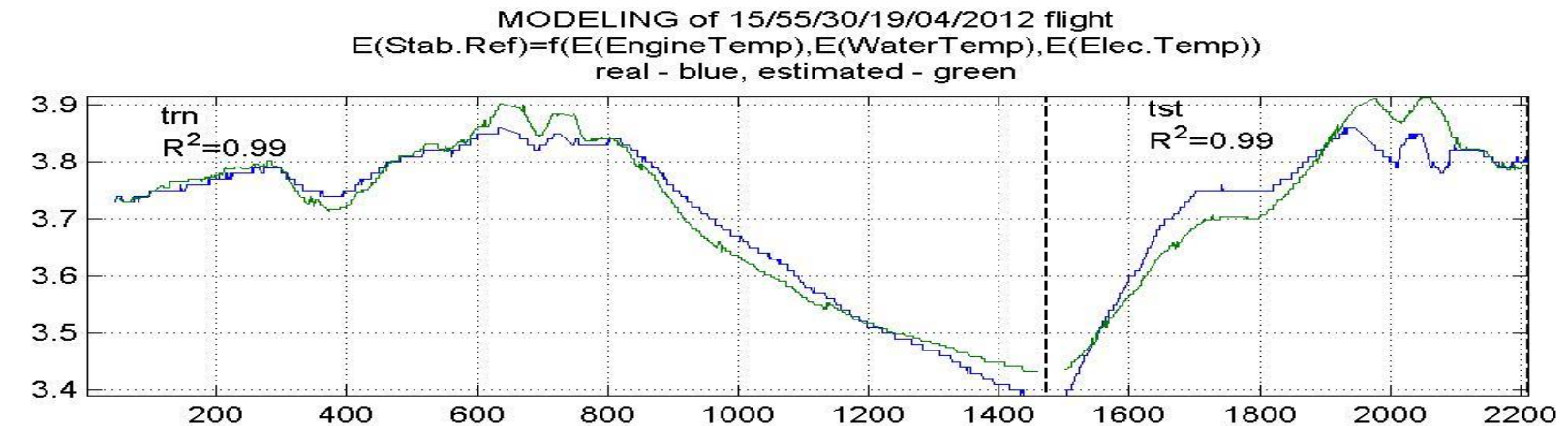
- Leakage Detection system in oil pipeline
- Detection was less than 30 sec
- Detect the leakage at transient state
- False alarms decreased by 95%



- Problem: Gas Leakage in a subsea pipe containing three simultaneous flow types i.e. gas, water and cleaning balls in the Black Sea, Russia
- DiagSense successfully monitored normal behavior

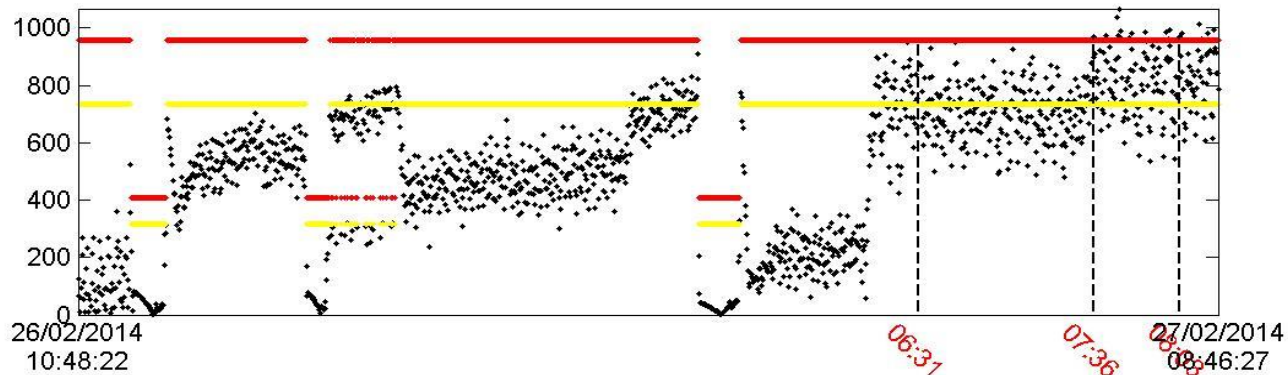
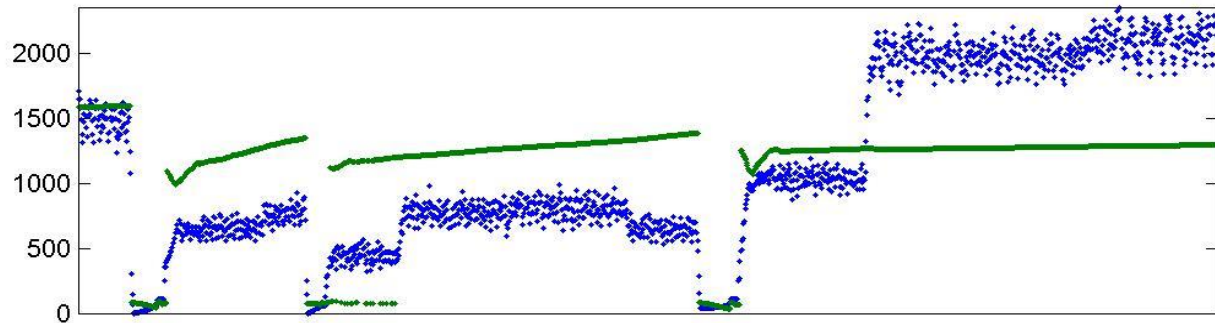


- Problem: Motors Malfunctions
- Predictive maintenance for the prevention of failures caused by engines overheating



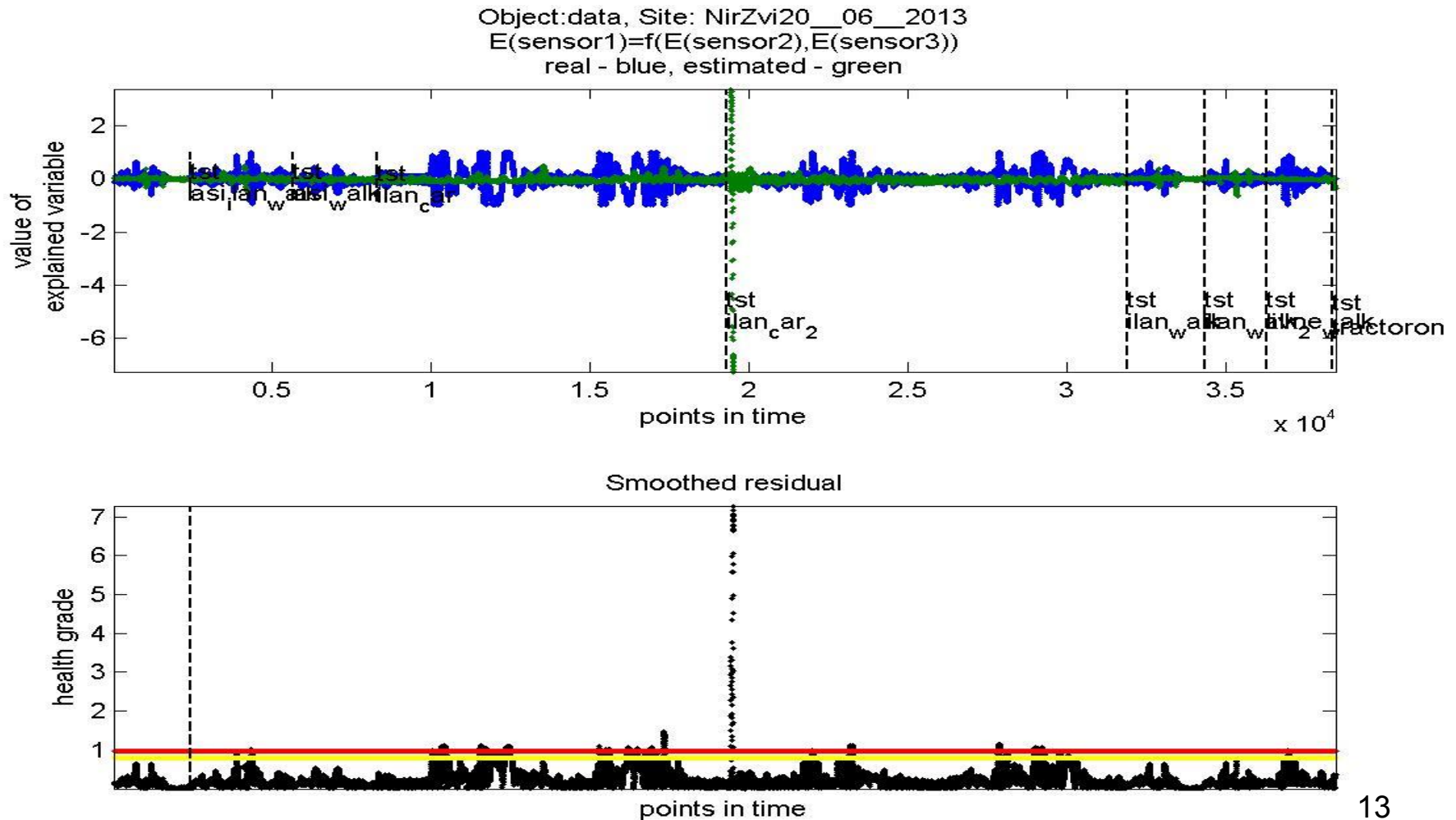
- After two years of operation a fouling was found in Heat Exchanger
- The fouling caused 16% decrease in heat exchange effectivity.

Gaszijde,  
Diagnostics of FY52301AV, Testing 9  
real - blue, estimated - green





- Problem: Detection and localization of underground seismic events
- ICU Invisible Control units



## Other relevant industries

- Turbines – Inefficiency of power generation
- Liquid pumps – Cavitation and vibrations
- Motors - shaft misalignment
- Pharmaceutical – Chemical reaction
- Petrochemical – physical and chemical influence over one another.
- Heavy Machinery – pre detection of shaft malfunction
- Any Industry with stationary processes (also with low level of stationarity)



**Thank you**