



# Speedwell Weather System

## The Open Weather Derivative Pricing and Risk Management System

SWS is an enterprise software application for pricing weather risk contracts, managing a portfolio of weather risk contracts and managing historical weather data and feeds. SWS provides front, middle and back-office support and helps with regulatory reporting .

SWS is integrated with the weatherXchange<sup>®</sup> Platform

## SWS Version 12 What's New

**SWS Version 12 has been released. We are pleased to announce the following important new features:**

**Optional weatherXchange Automated Pricing Service (APS):** The APS is a user-configurable pricing service that allows complete automation of responding to RFPs sent from the weatherXchange Platform

**Full Pricing and Risk Management Support for Quantos:** SWS now supports Delta\_T\*Delta\_P type gas-settled quantos

**New C# Script with access to SWS Assemblies:** this powerful and extremely fast engine can remove the need to use weights series

**Further integration with the weatherXchange data API and the Gridded data API**

**New 'Overall cap' option on Swaps in the Strip engine**

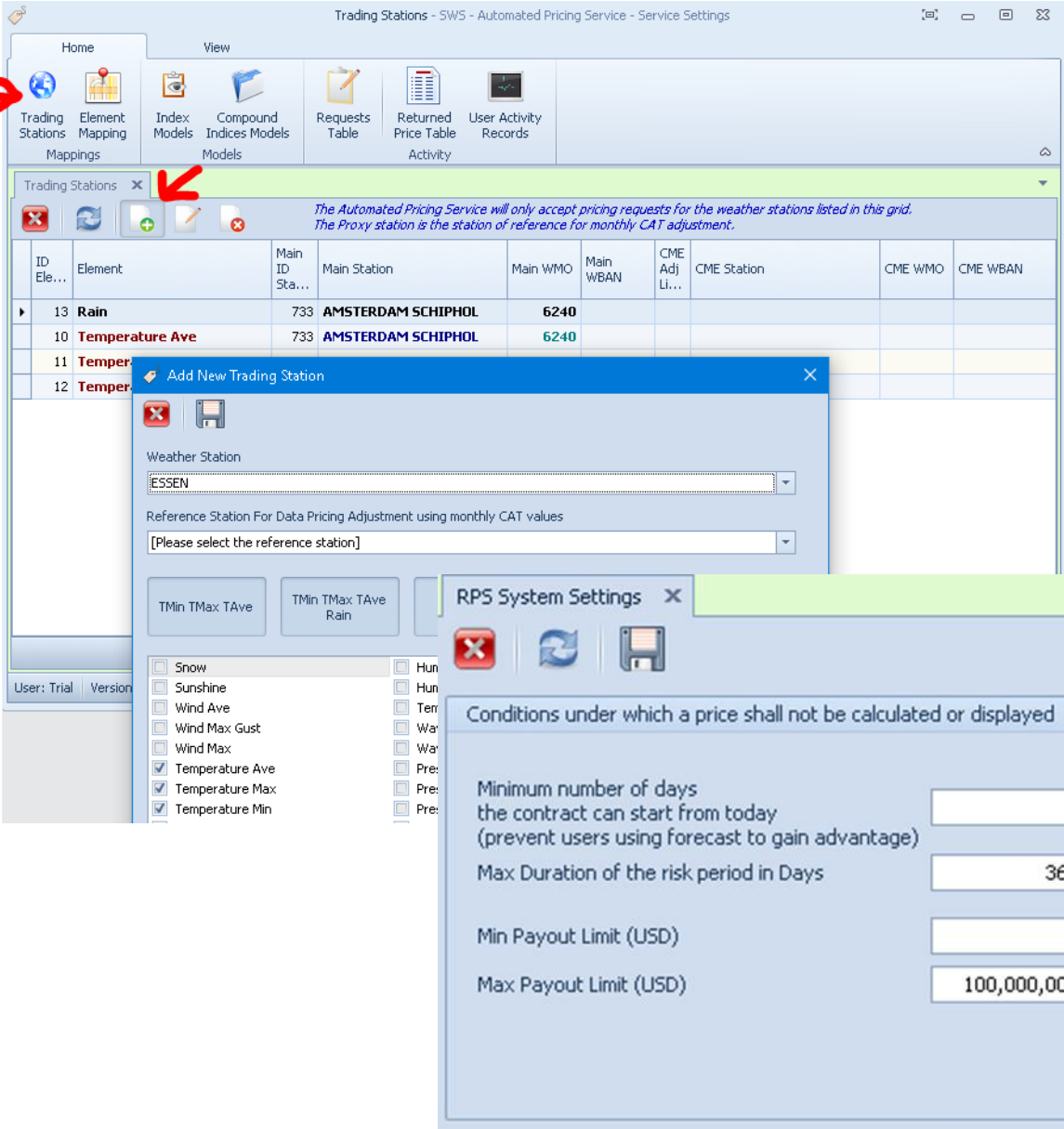
**A new 'Data Series type' property for elements and 'Station Type' for stations**

## Automated Pricing Service (APS)

SWS v12 includes a pricing service to automatically price and respond to RFPs coming from the weatherXchange® platform. It can be configured to filter pricing requests on a number of criteria and uses dedicated user-defined index models to generate a price.

The APS is a web service and is fully integrated with the Speedwell Weather System API and database.

The APS can be hosted by Speedwell or within your organization, and is available for no additional charge to companies that subscribe to both SWS Enterprise and Speedwell's SuperPack® premium service



The screenshot displays the 'Trading Stations - SWS - Automated Pricing Service - Service Settings' window. The interface includes a navigation bar with icons for Home, View, and various data tables. A table of trading stations is visible, with columns for ID, Element, Main ID, Main Station, Main WMO, Main WBAN, CME Adj, CME Station, CME WMO, and CME WBAN. Two rows are shown: 'Rain' and 'Temperature Ave', both associated with 'AMSTERDAM SCHIPHOL' and WMO code '6240'. A red arrow points to the 'Add New Trading Station' button in the table's toolbar. Another red arrow points to the 'Add New Trading Station' dialog box, which is open and shows 'ESSEN' as the selected weather station. Below this, the 'RPS System Settings' dialog is open, displaying configuration options for pricing conditions.

ID Ele...	Element	Main ID Sta...	Main Station	Main WMO	Main WBAN	CME Adj Li...	CME Station	CME WMO	CME WBAN
13	Rain	733	AMSTERDAM SCHIPHOL	6240					
10	Temperature Ave	733	AMSTERDAM SCHIPHOL	6240					
11	Temper...								
12	Temper...								

**RPS System Settings**

Conditions under which a price shall not be calculated or displayed

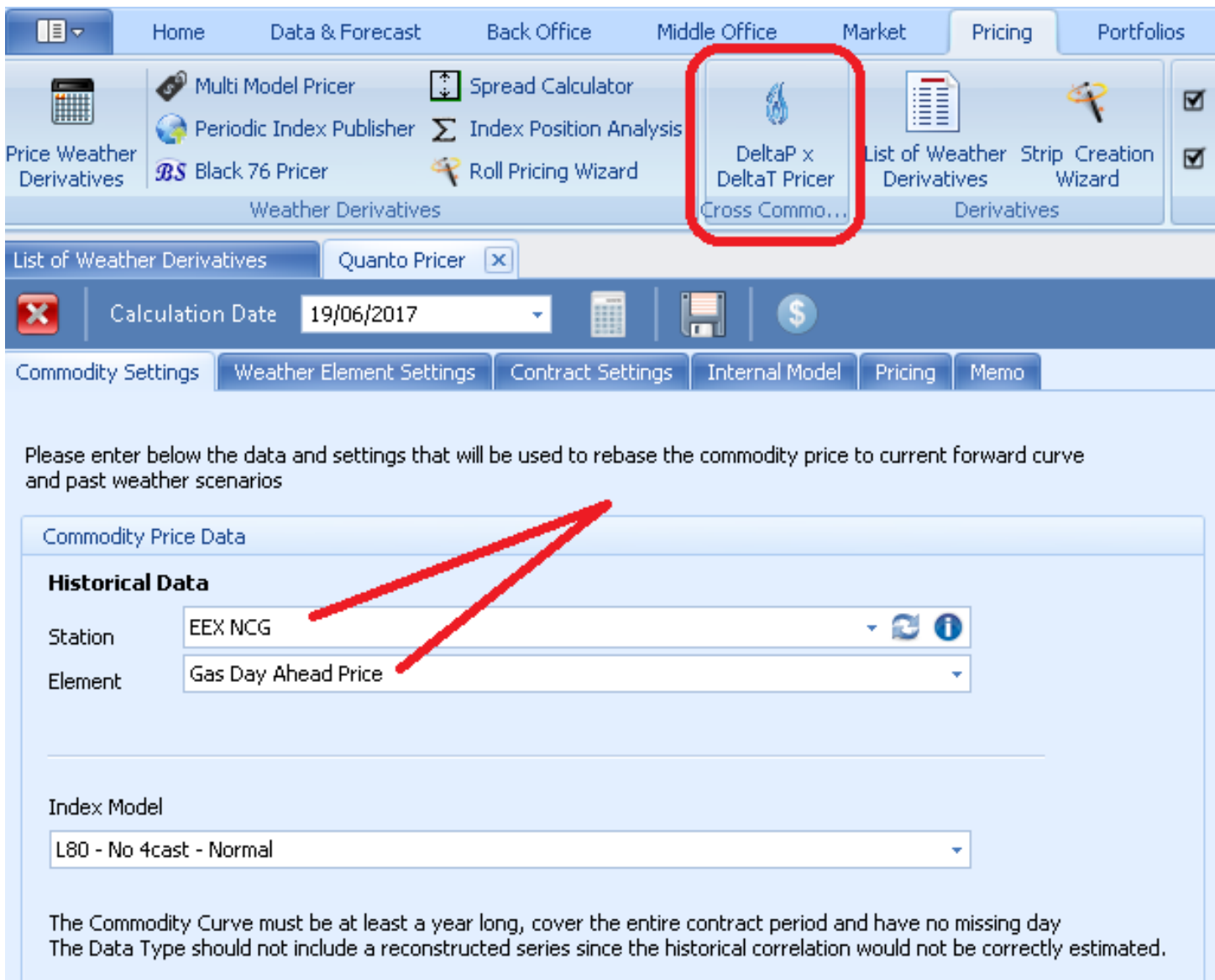
- Minimum number of days the contract can start from today (prevent users using forecast to gain advantage): 1
- Max Duration of the risk period in Days: 366
- Min Payout Limit (USD): 0
- Max Payout Limit (USD): 100,000,000

## Quantos Support

SWS 12 now supports Delta\_T\*Delta\_P type gas-settled quantos

Pricing uses rebased historical data and quanto specific simulation. Both temperature and the commodity are simulated on a daily basis that respects:

- temperature process
- gas process
- forward curves
- correlations



Home Data & Forecast Back Office Middle Office Market Pricing Portfolios

Price Weather Derivatives Multi Model Pricer Spread Calculator Periodic Index Publisher Index Position Analysis Black 76 Pricer Roll Pricing Wizard DeltaP x DeltaT Pricer List of Weather Derivatives Strip Creation Wizard

Weather Derivatives Cross Commo... Derivatives

List of Weather Derivatives Quanto Pricer

Calculation Date 19/06/2017

Commodity Settings Weather Element Settings Contract Settings Internal Model Pricing Memo

Please enter below the data and settings that will be used to rebase the commodity price to current forward curve and past weather scenarios

Commodity Price Data

**Historical Data**

Station EEX NCG

Element Gas Day Ahead Price

Index Model

L80 - No 4cast - Normal

The Commodity Curve must be at least a year long, cover the entire contract period and have no missing day  
The Data Type should not include a reconstructed series since the historical correlation would not be correctly estimated.

## C# script with access to SWS assemblies

The new C# engine simplifies and speeds up complicated index calculations. It allows access to the SWS database to allow climatologies for a station to be retrieved, for example. All data points in the current risk period are passed in to the calculation function, allowing for example:

- Entering an index to calculate the departure from normal for an automatically-calculated Normal curve can be done in just a few lines
- Returning the average of an index value for this year and previous year
- Returning the sum of the 10 smallest values in the risk period
- Calculating indices that are path dependent (eg the average of current year and previous year)

```
// example 2: Return on the last day the average value of the period
if (MeasDate == DataDates[DataDates.Length-1])
    return Average(DataValues[0]);
else
    return 0.0;

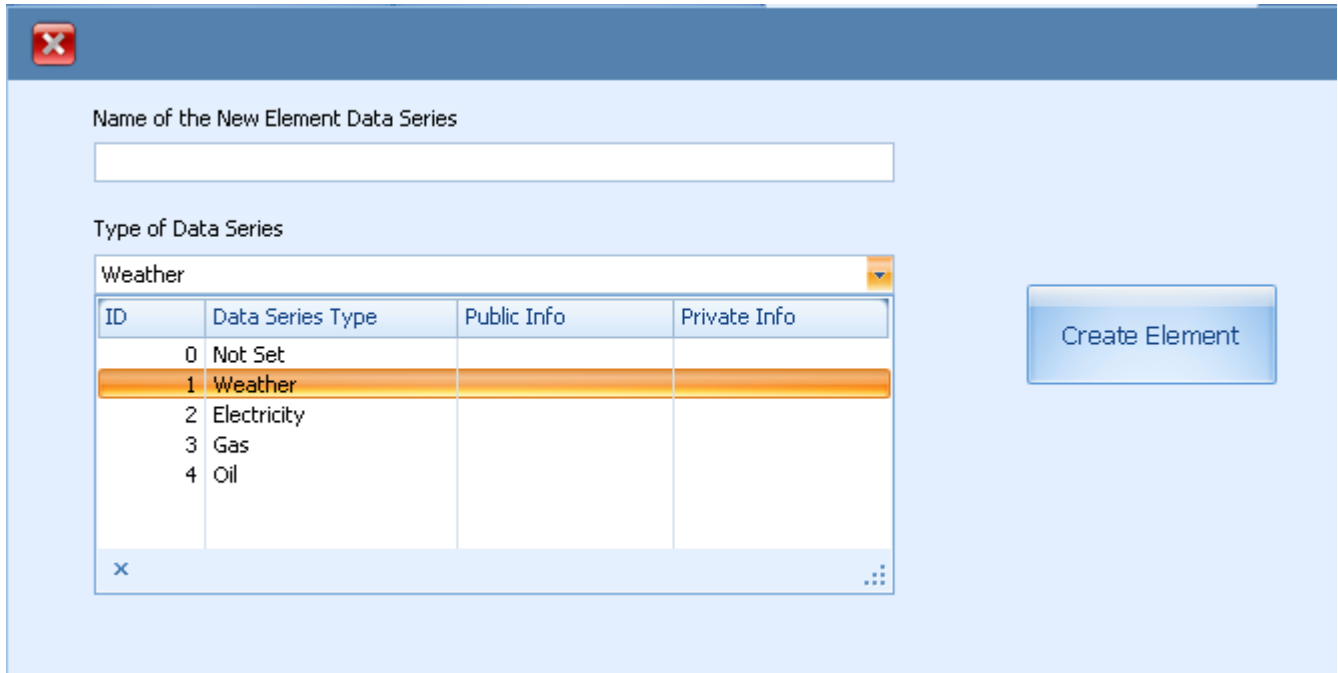
// example 3: Return On the last day the sum of the 10 smallest values
if (MeasDate == DataDates[DataDates.Length-1])
{
    var r = (from d in DataValues[0]
            orderby d ascending
            select d).Take(10);
    return r.Sum();
}
else
    return 0.0;

// example 4: Returns where possible the average of the value and 1
if (m_DDL == null)
    m_DDL = GetFullHistory(2082, 10);
DateTime wPrevYear = MeasDate.AddYears(-1);
if (m_DDL.ContainsDate(wPrevYear))
    return (m_DDL[wPrevYear].Value + WR[0]) / 2.0;
else
    return WR[0];

// example 5: Calculate the departure from Normal
if (m_Climatology == null)
{
    LoadClimatology(2082, 10);
}
return DifferenceVsClimatology(MeasDate, WR[0]);
```

## Data series type property

An element data series can now be allocated a Data series type eg 'weather', 'electricity', 'gas' etc



Name of the New Element Data Series

Type of Data Series

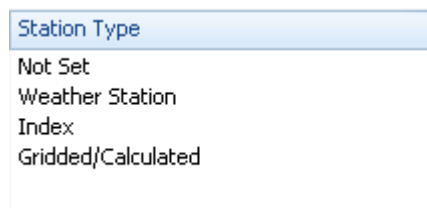
Weather

ID	Data Series Type	Public Info	Private Info
0	Not Set		
1	Weather		
2	Electricity		
3	Gas		
4	Oil		

Create Element

## Station Type

Stations can be marked as follows. This allows easy searching/filtering for all gridded data stations for example



Station Type

- Not Set
- Weather Station
- Index
- Gridded/Calculated

## About Speedwell Weather Limited

Speedwell Weather provides quality weather data, weather forecasts, software, and weather-risk consultancy. With offices in the UK and the USA we serve clients in sectors including weather-risk, energy and agriculture world-wide. We are the dominant provider of settlement data for parametric weather risk contracts.

## About weatherXchange Limited

weatherXchange® is an independent platform which provides free access to thousands of quality weather data sets worldwide and a wizard to simplify the design of weather protection contracts. weatherXchange connects the hedger directly with multiple protection sellers, allowing easy price comparison, or with brokers who can advise and intermediate on the hedger's behalf. The weatherXchange platform also offers post-transaction services necessary to settle a transaction and to monitor a hedge by providing daily P&L and VaR reports. weatherXchange is part of the Speedwell Weather Group. weatherXchange is authorised and regulated by the Financial Conduct Authority

### Contacts

For more information about SWS or data and forecast services please see [www.SpeedwellWeather.com](http://www.SpeedwellWeather.com)

Or contact:  
[SWSSales@SpeedwellWeather.com](mailto:SWSSales@SpeedwellWeather.com)

Telephone:  
Europe: +44 (0) 1582 465 551  
USA: +1 843 737 4843

Address UK: *Mardall House, Vaughan Rd, Harpenden, Herts, AL5 4HU*  
Address USA: *418 King Street, Charleston, SC 29403*

**Environmental  
Finance**

**Annual Market Rankings**

**Winners: 2007-2015**

Best Advisory/Data Service

**Best Global Weather Risk Management  
Advisory / Data Service Winner for the 10<sup>th</sup>  
consecutive year**

**Environmental  
Finance 2016**

**Annual Market Rankings**

**Winner**