



weatherXchange

weatherXchange[®] - a platform which facilitates index-based
weather risk transfer



Introduction

The index-based weather risk market has grown substantially especially over the last two years.

weatherXchange® is designed to make the market for weather risk protection even more accessible to users who need it for their business.

As an independent platform, weatherXchange streamlines the process of placing and then monitoring / reporting risk.

This introduction is directed at buyers of index-based weather risk protection, referred to in this documents as “Hedgers”

Please contact us to request an introduction for Protection Sellers and Broker-Advisors

What is weatherXchange?

weatherXchange is an independent, web-based platform that streamlines the process of placing weather risk, monitoring / reporting, and settling weather risk hedges.

For Hedgers:

- Access to free historical data for index calculation.
- Free weather-hedge structuring tools.
- Send pricing requests (“RFPs”) to multiple Protection Sellers at a click of a button. No brokerage fees, no hidden commission fees.
- Introduction to Broker-Advisors where investment advice / intermediation / consultancy is required.
- Seamless on-platform access to post-trade services (chargeable) including Settlement Services and provision of Valuation Services: ie pre-period and in-period contract valuation data including mark-to-market, daily P&L, VaR.

For Broker-Advisors:

- weatherXchange introduces new Hedgers who require advice or anonymity to Broker-Advisors. weatherXchange provides potential Hedgers with your contact details allowing you to establish direct dialogue.
- Automated RFP process to reduce the frictional forces in requesting prices.
- No brokerage fees charged by weatherXchange.
- weatherXchange links to your web site providing information about your services.
- Join weatherXchange on our marketing campaigns: trade shows, seminars and weatherXchange events.

For Protection Sellers:

- weatherXchange functions as a free salesforce by providing free introductions to new buyers of weather risk protection.
- No brokerage fees.
- We provide potential Hedgers with your contact details allowing you to respond by sending a price or opening bi-lateral discussions
- weatherXchange links to your web site providing information about your services.
- Seamless on-platform access to other services that are required for new Hedgers to be able to trade: independent settlement services, provision of pre-period and in-period contract valuation data: mark-to-market, VaR (chargeable).
- Integration with Speedwell Weather System for efficient response to RFPs and instant access to historical data for pricing.



What weatherXchange offers

weatherXchange provides:

- Hedgers with **free weather data** for thousands of sites and basket-indices as well as **gridded** data
- **Free structuring tools** to help the process of designing a hedge
- Instant Indicative Pricing allowing an immediate indicative price to be generated to help speed up the structuring process
- Direct communication with multiple Protection Sellers for tradeable prices
- Access to Settlement Data (provided by Speedwell Settlement Services Ltd, chargeable)
- Access to Calculation Services for mark-to-model, risk and P&L (provided by Speedwell Calculation Services Ltd, chargeable)

Front to back office work-flow for weather risk management

weatherXchange Limited is regulated by the Financial Conduct Authority

weatherXchange is compliant with regulations for users based in the EU-Switzerland-UK, Argentina, Australia, Bermuda, Brazil, Canada, Colombia, Turkey, USA

Speedwell Settlement Services to be regulated under forthcoming European Benchmark Regulations



The Platform

Structuring / Pricing

The screenshot displays the WeatherXchange platform interface, organized into several functional sections:

- Design Weather Protection Contract (Orange Header):**
 - Create New Weather Protection Contract:** A large orange button with a shield icon.
 - Get Advice / Prices from Broker-Advisors:** A button with a speech bubble and dollar sign icon.
 - Get Prices direct from Protection Sellers:** A button with a double arrow and dollar sign icon.
 - Saved Draft Contracts:** A button with a document icon.
 - weatherXchange logo:** Located at the bottom right of the section.
- Design Weather Protection (Dark Grey Panel):**
 - Icons for sun, cloud with rain, and snowflake.
 - Design Weather Protection:** Section title.
 - Using the wizard, create the Weather Protection Contract you require. If required, contact us for assistance through the on-line chat tool. (We are unable to provide financial advice relating to matters such as suitability of a structure, but we can help with general and technical questions).** Main text.
 - Navigation arrows and a progress indicator (a row of seven dots, with the first one filled).
- Settlement Data Services (Green Header):**
 - Settlement Data Certificates:** Button with a document and gear icon.
 - Request Settlement Data Certificate:** Button with a cloud and gear icon.
 - Settlement Data Services are provided by Speedwell Settlement Services Limited. Settlement Data is scientifically and objectively quality-controlled weather data where any missing data points are filled. Settlement Data are then used to calculate the final payment, if applicable, of the Weather Protection Contract.** Description text.
 - Speedwell Settlement Services Ltd:** Provider name.
- Calculation Services for Risk Reporting (Orange Header):**
 - Request End of Day Valuations:** Button with a dollar sign and up/down arrows icon.
 - List of Active Valuations:** Button with a checkmark and dollar sign icon.
 - End of Day Risk Report:** Button with a warning triangle icon.
 - Portfolios:** Button with a folder icon.
 - Valuation Services are independently provided by Speedwell Calculation Services Limited. This service offers the standard key valuation metrics throughout the life of a Weather Protection Contract as may be required by accounting standards. Settlement Data Services are included in this service.** Description text.
 - Speedwell Calculations Services Ltd:** Provider name.
- Data and Forecasts (Blue Header):**
 - View Historical Data:** Button with a document icon.
 - View Forecasts:** Button with a cloud and sun icon.
 - Speedwell Weather:** Logo at the bottom right.

Settlement

Middle office-risk reporting / P&L

The Hedger Process Flow

1 Request Login



2 Design Weather Protection



3 Save Contract



4 Know Your Client



5 Request Price or Contact Broker-Advisor




6 Complete Transaction



Speedwell Calculation Services

7 Calculate Value



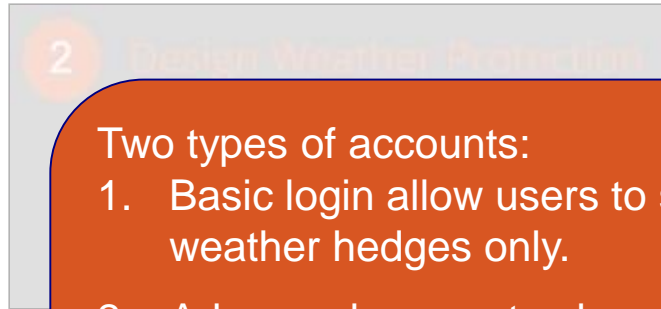
Speedwell Settlement Services

8 Settlement Certificate



weatherXchange

The Hedger Process Flow: Login

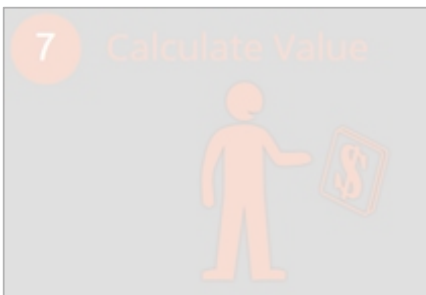


Two types of accounts:

1. Basic login allow users to structure weather hedges only.
2. Advanced accounts also allow saving multiple structures , RFP distribution, Term Sheet distribution to Broker-Advisors, Speedwell Calculation Services & Speedwell Settlement Services



Speedwell Calculation Services Ltd



Speedwell Settlement Services Ltd



The Hedger Process Flow: Design Contract



The weatherXchange wizard

This tool allows new and experienced users of weather hedging to find data and structure a hedge.

- Industry-specific templates
- Access to global weather data
- Statistical analysis
- Historical valuation summary

Design Your Weather Protection Contract

This wizard will guide you through creating your own customised weather risk hedge template.

To start with, please select your main weather risk profile from the list below

By Industry Sector

Energy -

Cooling Degree Day

Heating Degree Day

Energy Degree Day

Cumulative Average Temperature

Cumulative Average T24

Cumulative Daily Wind

Critical Low Wind Average (<=)

Critical High Wind Average (>=)

Agriculture -

High Cumulative Rainfall

Low Cumulative Rainfall

Critical Hot Days (TMax >=)

Frost (TMin <)

Persisting Frost Days (TMin <)

By Exposure

Ground Truth Observation Data Measured at a Location

Average Temperature -

Average Temperature

Cumulative Average Temperature

Cumulative Average T24

Heating Degree Days

Cooling Degree Days

Max Temperature -

Critical Hot Days (TMax >=)

Persisting Hot Days (TMax >=)

Min Temperature -

Critical Cold Days (TMin <=)

Frost (TMin <)

Persisting Cold Days (TMin <=)

The Hedger Process Flow: Design Contract

1 Request Login

2 Design Weather Protection

3 Save Contract

The weatherXchange wizard provides access to an unprecedented amount of high quality global data for pricing.

The database:

- Circa 3,000 stations with millions of cleaned values
- Standard indices (energy, agriculture, population weighted...)

Tradable stations:

- Data for pricing (long histories, cleaned data)
- Data for marking a transaction (reliable feeds, cleaned data)
- Ability to produce Settlement Data

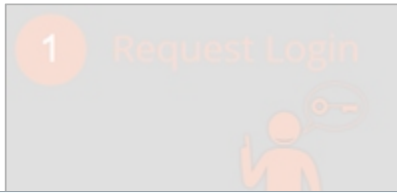
This database will continue to grow. If the data is not available... just ask. We are able to provide many other data sets you may require

The screenshot displays the weatherXchange website interface for the 'Design Contract' wizard. The 'Location' step is highlighted with a yellow circle. The form includes the following fields and options:

- Location:** Charleston International Airport
- Element:** Daily Precipitation
- Index Type:** Critical Rain Days (Rain > Threshold)
- Continent:** Global, Europe, North America, South America, Asia, Oceania, Africa
- Country:** United States
- Search Type:** Weather Station, Postal/Station Code, Coordinates, Map
- Please select the type of code:** Post Code
- Please enter the code:** 29403
- Find and Locate on Map** button

A map below the form shows the location of Charleston International Airport in South Carolina, with a tooltip displaying the coordinates: Lat: 32.899, Long: -80.04.

The Hedger Process Flow: Design Contract



Step 3

The screenshot shows the 'Index' step of the contract design process. The '2 - Index' button is highlighted with a yellow circle. The 'Weather Index Specifications' section includes the following details:

- Location: Charleston International Airport
- Element: Daily Precipitation
- Index Type: Critical Rain Days (Rain > Threshold)
- Cover Period Start Day: 10/01/2016
- Cover Period End Day: 10/31/2016
- Weather Threshold: 0

The screenshot shows the 'Parameters' step of the contract design process. The '3 - Parameters' button is highlighted with a yellow circle. The 'Parameters' section includes the following details:

- Calculation Date: 2016.Sep.12
- Location: Charleston International Airport
- Element: Daily Precipitation
- Protection Period: 2016.Oct.01 to 2016.Oct.31
- Index Type: Critical Rain Days (Rain > Threshold)
- Weather Threshold: 0
- Days Excluded: None

The 'Historical Values Summary' table is as follows:

Num. Of Years	Index Average	Trend-Adjusted Index Average
20	7.85	7.85
15	8.20	8.20
10	7.20	7.20
5	7.00	7.00
1	10.00	10.00

The 'Historical Index Values' chart shows the index value from 1950 to 2020. The chart includes a line for the index, a horizontal line for the strike, and a horizontal line for the index limit.

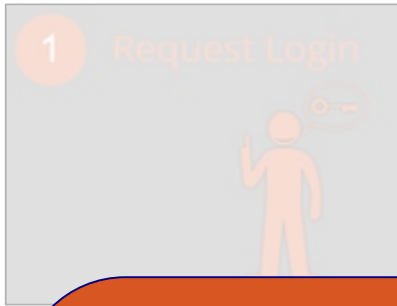
The 'Payout conditions' section includes the following details:

- Protection Start Level (Strike): 15
- Maximum number of Index Units (Cap): 5
- Protection Value per Unit (Tick): 75,000
- Protection Max Payout: USD 375,000

The Hedger creates the Draft Contract. Tools are provided to refine the specifics of the hedge:

- Historical index values overlaid with strike & cap
- Index probability curves
- Probability of payout

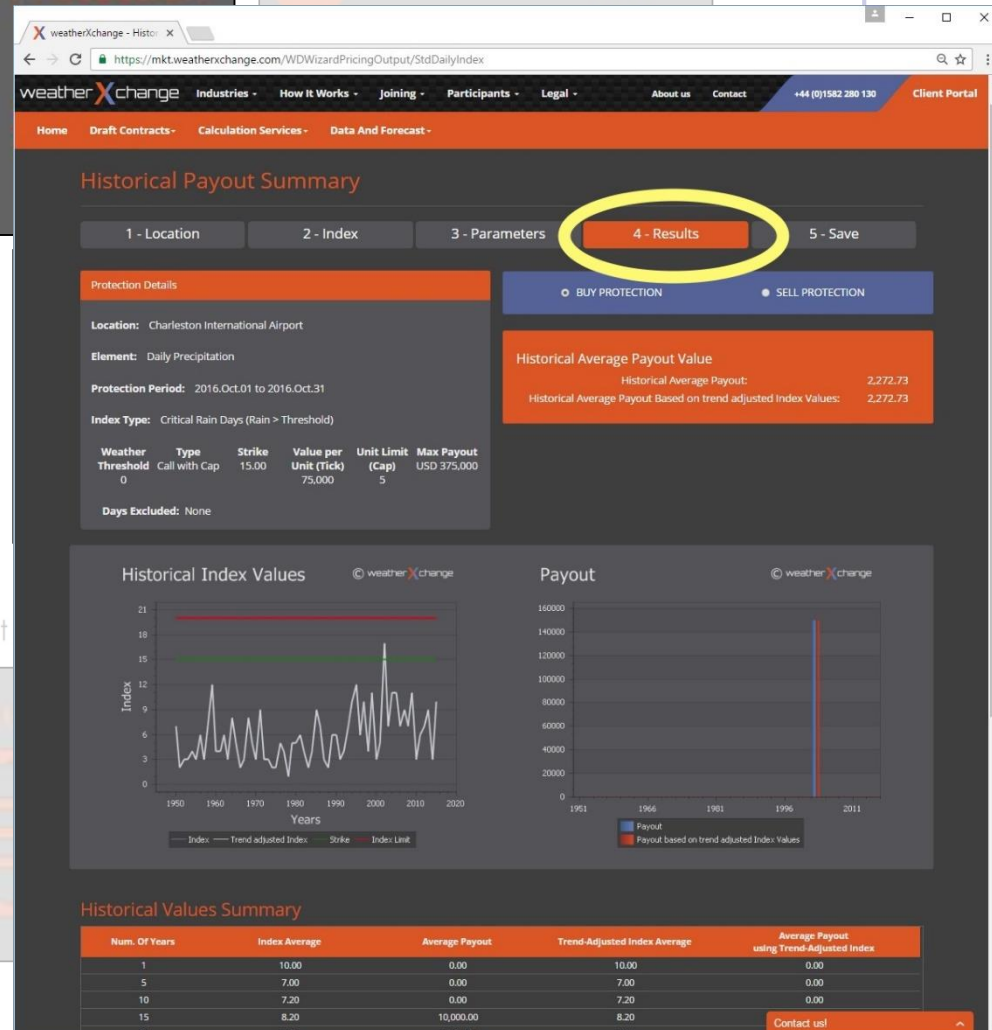
The Hedger Process Flow: Design Contract



Historical Payout Summary

This tool examines the historical performance of the hedge:

- Draft Contract summary
- Historical average payout
- Burn analysis
- Historical annual results
- Detrended data analysis



The Hedger Process Flow: Saving Contract

weatherXchange - Save

https://mkt.weatherchange.com/WDW/izardSave/WDW/izardSave

weatherXchange Industries - How it Works - Joining - Participants - Legal - About us - Contact +44 (0)1982 380 130 Client Portal

Home Draft Contracts - Calculation Services - Data And Forecast -

Save

1 - Location 2 - Index 3 - Parameters 4 - Results **5 - Save**

Protection Details - BUYING

Location: Charleston International Airport

Element: Daily Precipitation

Protection Period: 2016.Oct.01 to 2016.Oct.31

Index Type: Critical Rain Days (Rain > Threshold)

Weather: Type Strike Value per Unit Limit Max. Threshold Call with Unit (Cap) Payout USD

Weather	Type	Strike	Value per Unit	Limit	Max. Payout
Threshold	Call with	13.00	(Tick)	(Cap)	USD
0	Cap	75,000			375,000

Days Excluded: None

Back Save



Saved Contracts

The Hedger is able to re-open any saved Draft Contract and revise it as required. From this screen the user is able to:

- Edit the Draft Contract
- Attached documents
- View historical data
- View historical payouts
- Request Settlement Data
- Request Valuation Services

weatherXchange - Saved X

https://mkt.weatherchange.com/Contract/View_ContractsList

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Saved Weather Protection Draft Contracts

This screen shows all your saved Weather Protection Draft Contracts, whether they have been trade Use this screen to group several contracts together in folders, perhaps by geolocation, currency or b A Contract may be renamed by clicking on its name on the grid.

Folders may be used to organize your contract templates into different fold

Folder All My Draft Contracts

Create New Contract Template Delete Selected Draft Contract(s) Move Selected Draft Contract(s) to Folder Import Contract Specifications

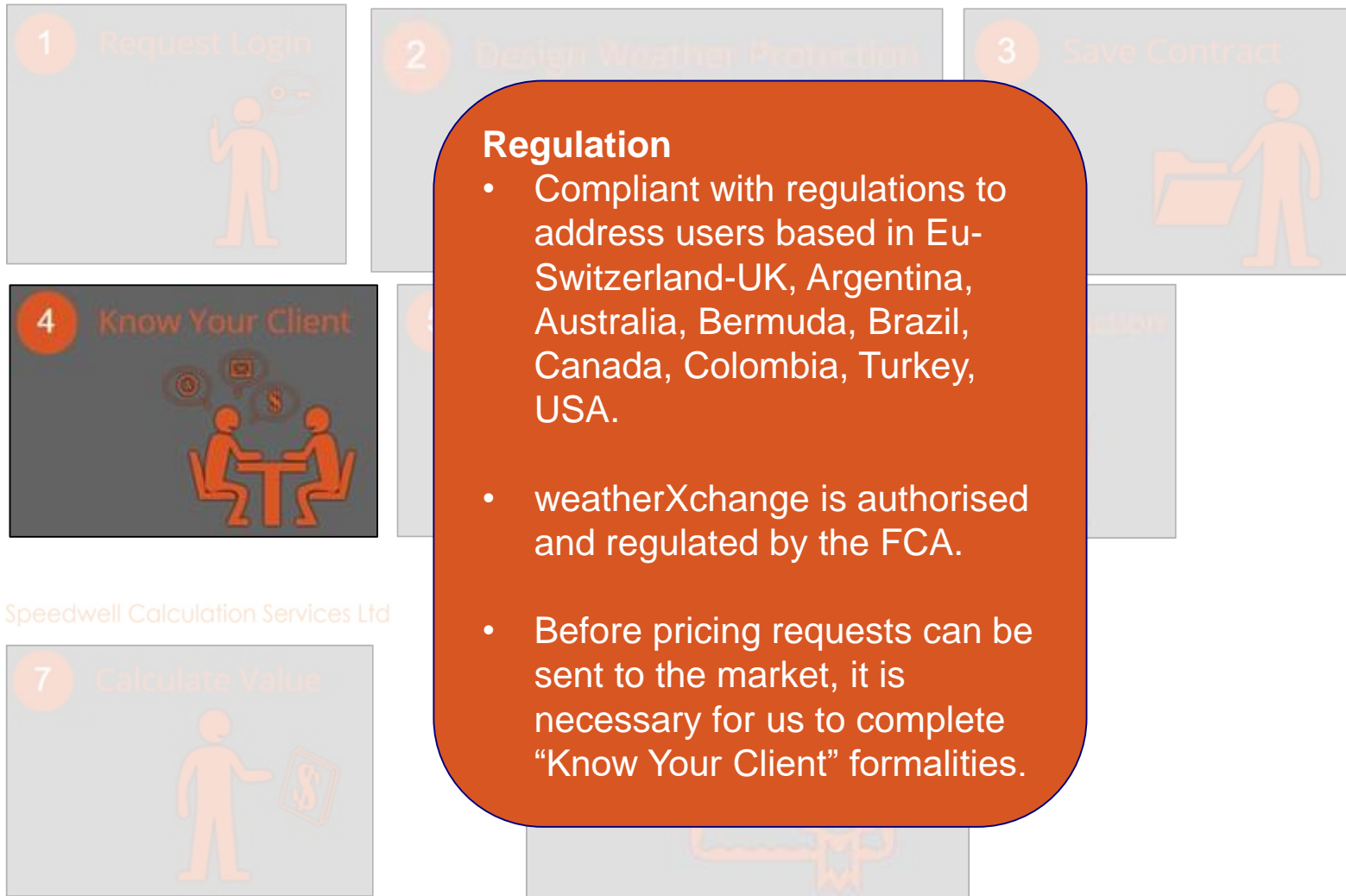
Contract Name	Location	Weather Element	Index Type	Weather Threshold	Cover Start Date	Cover End Date	Protection Type	Protection Start Level (Strike)	Protection Unit Limit (Cap)	Protection Value per Unit (Tick)	Protection Max Payout	Protection Strike Level 2	Protection P Cap 2
Charleston International Airport - All Contracts - 2016 Oct 01 to 2016 Oct 31	Charleston International Airport	Daily Precipitation	Cumulative Precipitation		2016-Oct-01	2016-Oct-31	Call with Cap	15	5	100,000	500,000		
Savannah Airport -2016 May 01 to 2016 Sep 30 - Copy	Savannah International Airport	Daily Average Temperature (TMin+TMax)/2	Cumulative Cooling Degree Day	65.00	2016-May-01	2016-Sep-30	Put with Cap	2,100	1,700	100,000	170,000,000		
Savannah Airport -2016 May 01 to 2016 Sep 30	Charleston International Airport	Daily Average Temperature (TMin+TMax)/2	Cumulative Cooling Degree Day	65.00	2016-May-01	2016-Sep-30	Put with Cap	2,100	1,700	100,000	170,000,000	False	
Charleston International Airport -2016 Sep 01 to 2016 Oct 31	Charleston International Airport	Daily Precipitation	Critical Rain Days (Rain > Threshold)	10.00	2016-Sep-01	2016-Oct-31	Call with Cap	1	8	100,000	800,000	False	False

Page 1 of 1 (4 items)

Extended Grid View

Contact us!

The Hedger Process Flow: Regulation



The Hedger Process Flow: Comparing Prices

Many Protection Sellers use the Speedwell Weather System (SWS) to price weather risk contracts and to manage their portfolio. SWS Vs 11 Protection Sellers automate the pricing of your hedge by:

- Automatically uploading your hedge into their SWS pricing system
- Providing immediate access to the weather data necessary for pricing your hedge

This reduces the response time to your enquiry

Automated Pricing Service

Coming soon, the SWS Automated Pricing Service (APS) further helps Protection Sellers to automate the provision of indicative or tradable quotes.

The screenshot displays the SWS interface with several components:

- Weather/Change Stations List:** A table listing weather stations with columns for Town, View Data, Code WMO, and Latitude.
- Retrieved Data Range:** A table showing data for Vichy-Charmeil from 20/10/2004 to 07/12/2015.
- VICHY-CHARMEIL-Rain Chart:** A bar chart showing daily rainfall from 2005 to 2013.

Town	View Data	Code WMO	Latitude
> Wuerzburg		10655	49.7670
Zugs Spitze		10961	47.4170

Dates	Values
20/10/2004	0.0001
21/10/2004	0.4
22/10/2004	n ?

The Hedger Process Flow: Transact



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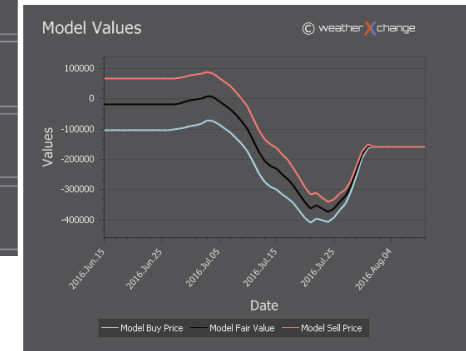
The Hedger Process Flow: SCS

Speedwell Calculation Services Limited (SCS)

- Transaction is recorded for Valuation Services including mark-to-model valuation, greeks, margin and VaR metrics (chargeable).
- Until now some companies have been unable to hedge their weather risk simply because they couldn't handle the day-to-day valuation of these instruments. SCS addresses this.

Calculation Services for Risk Reporting

- Request End of Day Valuations
- List of Active Valuations
- End of Day Risk Report
- Portfolios



6 Complete Transaction

End of Day Risk Reports

End of Day Risk Reports are calculated between 2pm and 4pm UK local time and provide independent mark to model values, value at risk measures and sensitivities.

Reporting Date: 14/07/2016 Refresh Export To Excel

Executed Contract Name	Buy?	Counterparty	Model Fair Value	Model Buy Price	Model Sell Price	Expiry VaR 97.5%	Expiry VaR 99%	Expiry VaR 99.9%	Model Index Average	Model Index StDev
Miami TMax Jul-Aug-16	False		165	126	204	-350	-350	-350	2.16	3.19
Long Miami	True		500	500	500	300	300	300	30.10	10.27


7 Calculate Value


Historical Values Summary Export To Excel

Calculation Date	Model Fair Value	Model Index Average	Model Index StDev	Partial Index With Forecast	Partial Index Date With Forecast	Model Buy Price	Model Sell Price	Delta	Gamma	Vega
2016-Jun-30	149	514.89	3.34	494.50	2016-Jun-29	142	156	10.00	0.00	0.00
2016-Jun-29	161	516.84	6.74	476.00	2016-Jun-28	148	174	161.02	0.00	0.28
2016-Jun-28	159	516.92	9.65	455.50	2016-Jun-27	141	178	159.42	0.91	1.23
2016-Jun-27	157	516.45	12.39	434.50	2016-Jun-26	135	180	157.23	0.03	2.05
2016-Jun-26	160	517.20	15.28	415.00	2016-Jun-25	143	185	160.21	0.60	3.33

The Hedger Process Flow: SSS

Settlement Data Services

 Settlement Data Certificates

 Request Settlement Data Certificate


Settlement Data Services are provided by Speedwell Settlement Services Limited. Settlement Data is scientifically and objectively quality-controlled weather data where any missing data points are filled. Settlement Data are then used to calculate the final payment, if applicable, of the Weather Protection Contract.

Speedwell Settlement Services Ltd

Speedwell Settlement Services

Transaction is recorded for the provision of Settlement Data.

- Speedwell Settlement Services Limited (SSS) has been created as the vehicle through which all of Speedwell’s existing Settlement Data will be provided. This anticipates best-practice requirements of impending Eu Benchmark regulation.
- Settlement Data is provided through an online interface as well as FTP. Pricing for this service has been standardized. For small transactions and transactions using the Speedwell-Market stations (see <http://www.speedwellweather.com/Speedwell-Market>).
- Settlement Certificates are produced for each transaction.
- Settlement services are chargeable but these costs are usually paid for by the Protection Seller.



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This Settlement Certificate is the official publication of the final Index for station

Washington Reagan National Airport August 2016

WMO: 72402
WBAN: 13743

Issued at 1400 UTC on 05 September 2016

Information contained within this Settlement Certificate may only be used for the purposes as laid out in the accompanying Terms and Conditions

DATE	MAX	MIN	Avg	RSD	WSD
2016.08.01	82.0	75.0	84.5	0.0	18.0
2016.08.02	91.0	75.0	83.0	0.0	18.0
2016.08.03	83.0	72.0	77.0	0.0	13.0
2016.08.04	86.0	76.0	78.0	0.0	13.0
2016.08.05	85.0	73.0	79.0	0.0	14.0
2016.08.06	84.0	76.0	84.5	0.0	19.5
2016.08.07	82.0	71.0	81.0	0.0	16.0
2016.08.08	82.0	70.0	81.0	0.0	16.0
2016.08.09	81.0	68.0	74.0	0.0	9.0
2016.08.10	85.0	77.0	86.0	0.0	21.0
2016.08.11	87.0	78.0	87.0	0.0	22.0
2016.08.12	99.0	81.0	90.0	0.0	26.0
2016.08.13	101.0	81.0	91.0	0.0	27.0
2016.08.14	100.0	80.0	90.0	0.0	26.0
2016.08.15	100.0	75.0	86.0	0.0	21.0
2016.08.16	97.0	75.0	86.0	0.0	21.0
2016.08.17	95.0	72.0	83.0	0.0	18.0
2016.08.18	92.0	74.0	83.0	0.0	18.0
2016.08.19	92.0	74.0	83.0	0.0	18.0
2016.08.20	91.0	75.0	83.0	0.0	18.0
2016.08.21	91.0	74.0	82.0	0.0	17.0
2016.08.22	89.0	69.0	77.0	0.0	12.0
2016.08.23	84.0	67.0	76.5	0.0	10.0
2016.08.24	86.0	67.0	76.5	0.0	11.0
2016.08.25	89.0	71.0	80.0	0.0	15.0
2016.08.26	89.0	71.0	80.0	0.0	15.0
2016.08.27	92.0	77.0	84.5	0.0	19.5
2016.08.28	90.0	74.0	83.0	0.0	17.0
2016.08.29	94.0	72.0	83.0	0.0	18.0
2016.08.30	91.0	75.0	83.0	0.0	18.0
2016.08.31	91.0	73.0	82.0	0.0	17.0
Average			82.74	0.00	18.00
Cumulative			2566.00		

Settlement values above are confirmed and certified by

PHI Hayes

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Settlement Certificate

8

Settlement Certificate



weatherXchange helps new and existing users of weather protection products by:

- providing free access to high quality worldwide data
- providing free access to on-line weather hedge structuring tools
- providing instant indicative pricing from multiple Protection Sellers
- introducing Hedgers who want advice or anonymity to Broker-Advisors
- offering easy price comparison using messaging technology
- providing access to Speedwell Settlement Services for official Settlement Data and Settlement Certificates
- providing access to Speedwell Calculation Services for the daily risk metrics necessary to manage a weather risk hedge once traded to satisfy internal and regulatory reporting requirements
- To request a login go to www.weatherXchange.com

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weatherXchange®

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