

ViewMondo® RCAM/RwyCC/SNOWTAM Reports User's Manual

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1 Content

1	Content	2
2	Introduction	3
3	Runway Setup	4
3.1	General Report settings	5
3.2	Runway for Measurement Drive.....	6
3.2.1	Runway Reporting Parameter	8
3.2.2	Runway Third Configuration	10
3.3	Runway for Spot RwyCC	13
4	Creating a RwyCC Report from a Measurement Drive	14
4.1	Select Measurement Drive.....	14
4.2	Measurement Spots on the Map	15
4.3	Aggregated values for each segment.....	16
4.4	Report Parameters	16
4.5	Used Measure Values (not using percentual coverage)	17
4.6	Percentual Coverage	18
4.7	RwyCC Report Values	18
4.7.1	Contamination Type:.....	19
4.7.2	Water Depth.....	21
4.7.3	Surface Description.....	21
4.7.4	Friction Coefficient.....	22
4.7.5	RwyCC from Surface Description	22
4.7.6	RwyCC from M μ	23
4.7.7	RwyCC from Pilot Report.....	23
4.7.8	Segment RwyCC	23
4.8	Saving Report	23
5	SNOWTAM Reports	25
5.1	Airport Report Settings	25
5.2	Runway Settings.....	29
5.3	RwyCC Report	29
5.4	SNOWTAM Report	30
6	Creating a NAV Canada NOTAM report.....	34
6.1	NAV Canada NOTAM RCR	34
7	Creating a Spot RwyCC Report	41
8	Viewing Reports	46
9	Change History	48

2 Introduction

RwyCC reports in ViewMondo are designed to support airport personnel to determine the runway condition code RwyCC based on the GRF/RCAM matrix.

Reports are stored in the database and can be retrieved for viewing and printing.

ViewMondo supports 2 versions of RwyCC reports:

- a) A basic "Spot RwyCC" Workflow with stationary measurement
- b) A "Measurement Drive RwyCC" report, using data from a measurement drive

For the Measurement Drive RwyCC, measurement data for the following sensor channels need to be available:

- Road Condition
- Water Film
- Surface Temperature
- Friction
- Ice Percentage

Optional additional sensor channels are

- Dew Point
- Relative Humidity

ViewMondo also supports creating SNOWTAM reports based on "Measurement Drive RwyCC" reports.

Please note: the model calculations used to derive the values for "Contamination Type" and "Surface Description" based on the available sensor data are only suggestions/approximations, based on the combination of the available sensor data. These values might or might not match the real conditions on the runway. Also, there are combinations of measure values where these model calculations cannot calculate any result codes.

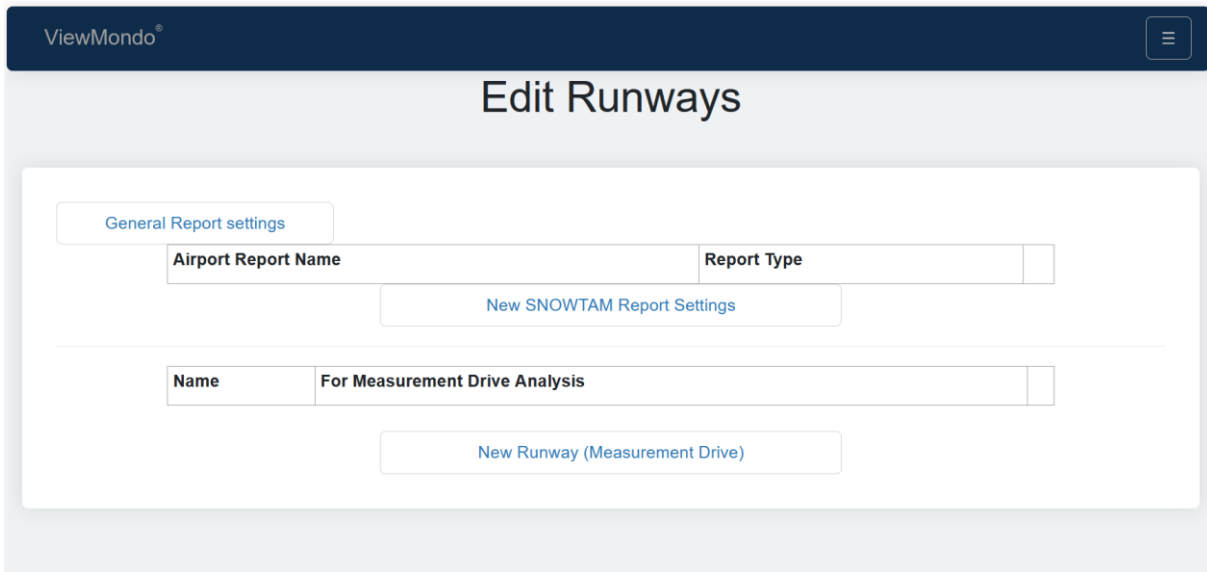
These values can be edited/set by the user when creating the report. The user/creator of a report should always double check the suggested values, and set/correct the values based on her/his observations.

3 Runway Setup

In order to create a report, at least one runway needs to be configured.

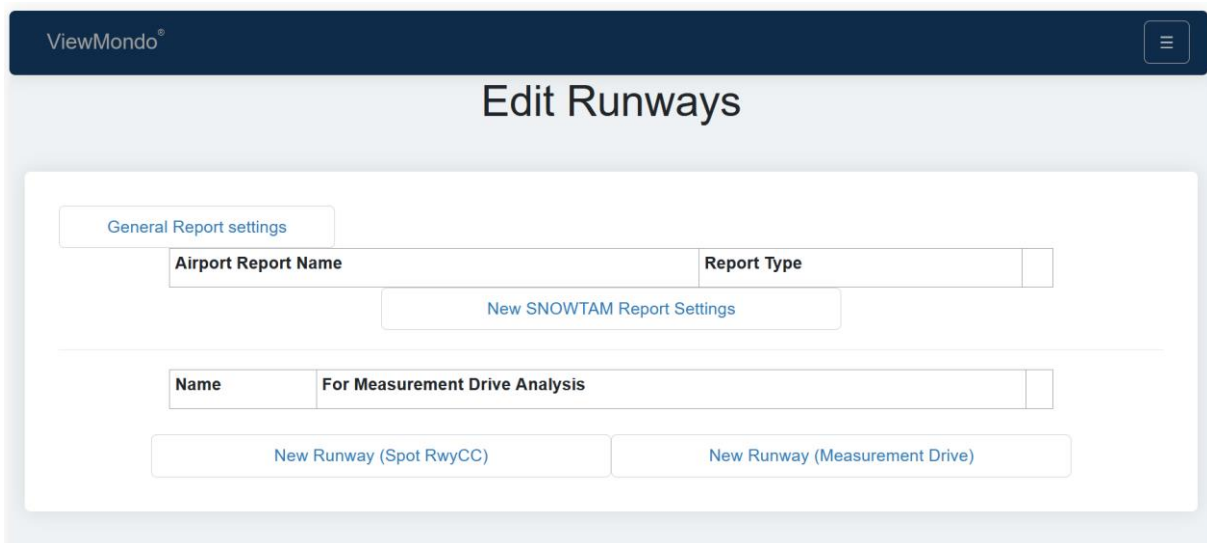
Runways can be configured by the group administrator user only (by selecting "Runway Setup" from the context menu). However, if no Runway is configured, and a user starts a Workflow (from the menu on a station page, or from the "Measurement Drive" list), the user will be prompted to configure a first runway.

The runway setup depends on which kind of report you want to use.



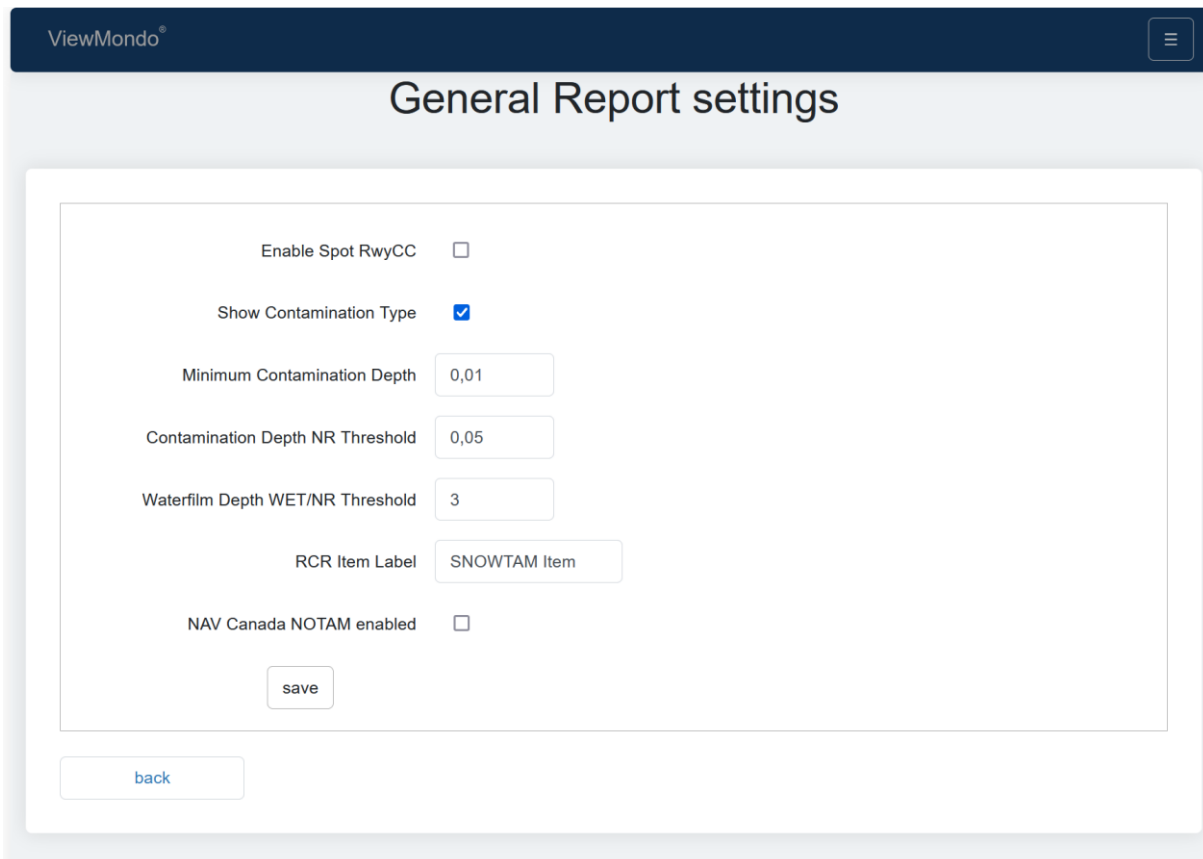
Note: at least one "SNOWTAM Report" template needs to be configured to use SNOWTAM reporting (see below)

Note: "Spot RwyCC" is now disabled by default. If you want to use/configure a runway for "Spot RwyCC" reporting, this option needs to be enabled in the SNOWTAM settings (see below).



3.1 General Report settings

Here general settings for the RwyCC/SNOWTAM/NOTAM Reporting are configured:



- **Enable Spot RwyCC:** enable the "Spot RwyCC" reporting. Since "Spot RwyCC" reporting is outdated and not GRF compliant, the default is disabled
- **Show Contamination Type:** show (or hide) the contamination type in the RwyCC reports result table.
- **Minimum Contamination Depth:** the minimum contamination depth considered a contamination. If the contamination is below this value, contamination depth and percentual coverage will be reported as "NR" and surface description will be set to "DRY".
- **Contamination Depth NR Threshold:** the minimum contamination depth (for surface description other than "WET" – see below) reported as "01" mm in the SNOWTAM report contamination depth. If the contamination depth is below this threshold, it will be reported as "NR". Note: this does NOT influence surface description or runway condition code.
- **Waterfilm Depth WET/NR Threshold:** the minimum waterfilm level for which the contamination depth in SNOWTAM report is reported. All waterfilm levels below this threshold are reported as "NR" Note: this does NOT influence surface description or runway condition code.
- **RCR Item Label:** the label for the SNOWTAM Item on the Runway Condition Report
- **NAV Canada NOTAM enabled:** enable the specific NAV Canada NOTAM report (see below). If enabled, following NAV Canada report parameters can (and need to) be configured:

NAV Canada NOTAM enabled

ICAO Code

Use Test Server

User

Password

- **ICAO Code:** Airport ICAO Code for NOTAM report
- **Use Test Server:** use the NAV Canada Test server instead of the production server
- **User:** user id for NAV Canada API access
- **Password:** the password for NAV Canada API access

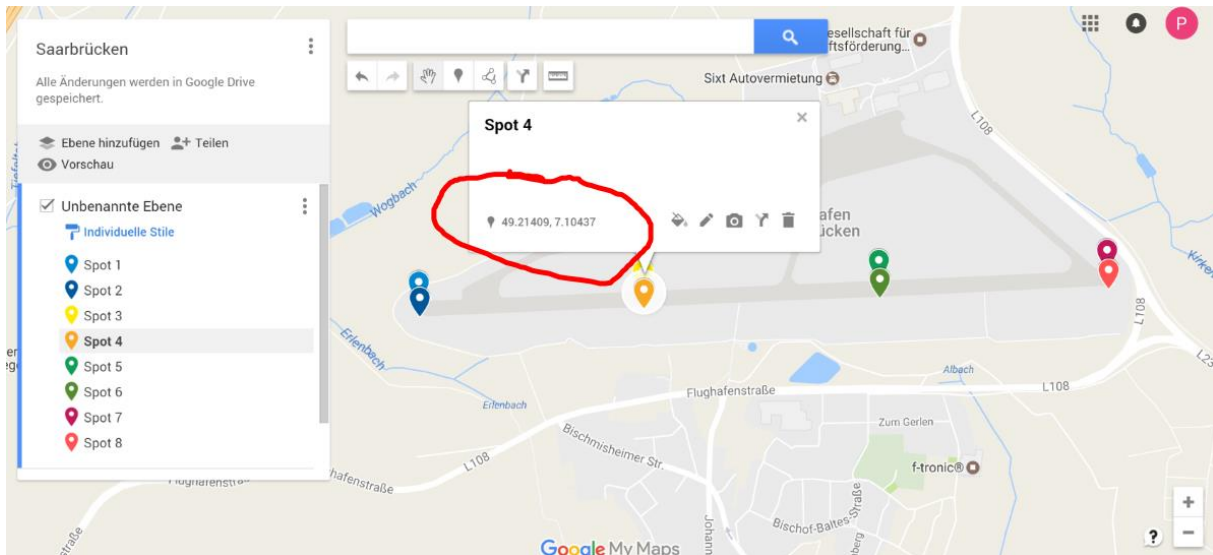
3.2 Runway for Measurement Drive

In order to process the data from a measurement drive, the GPS coordinates for the 3 runway segments need to be configured.

A convenient way to get these GPS locations is through google maps – by creating your own map where you can place multiple location icons on the map to see the GPS coordinates.

To do so, please follow these steps:

- Go to <http://maps.google.com>
- Make sure you're signed in - you can do so by clicking the Login button in the top-right corner
- In the top left corner, next to the search box, click the menu icon to expand the menu
- Click "Your Places", "Maps" and then click "Create Map" to edit your map
- A new window will pop up. Give your map a title and description, then click "Save"
- You can now pinpoint locations manually by clicking the marker icon and placing it directly onto the map
- Mark the corners of the 3 runway segments – this gives you a total of 8 spots on the map



- If you click on one of your spots, the location information (latitude, longitude) is shown on the lower left bottom of the pop-up window.
- Keep this google maps window open in a separate browser tab or window - you can mark this text for copy and paste into the respective input field on the runway configuration dialog (see below)

Besides a name for the runway (as with the "Spot RwyCC Runway above"), you can configure email recipients for the report.

Below that, the runway segments can be selected for editing, and parameters for the runway assessment calculation can be set

3.2.1 Runway Reporting Parameter

Runway

Name

Include in Airport SNOWTAM

Send Report as Email

Email Recipients

Rotate Map Orientation

Edit Thirds/Segments

0 A
 0 B
 0 C

Use Worst Road Condition

Use Minimum Surface Temperature

Use Maximum Dew Point

Use Max Ice Percentage

Use Minimum Friction

Use Max Waterfilm

Model Version ▾

Include Friction/M μ

Rime/Frost Temperature Threshold

Dry Snow Ice Percentage Threshold

Slush Ice Percentage Threshold

Slush/Ice Surface Temperature Threshold

Compact/Rolled Snow WFH Threshold

Use Percental Coverage (GRF/RCAM)

Minimum Per Cent Coverage

[Back to Runway List](#)

Note: to use a runway with SNOWTAM reports, the “Include in Snowtam” option needs to be checked, and the (lower) runway designator needs to be configured:

Runway

Name

Include in Airport SNOWTAM

Designator

The parameters are as follows:

Parameter	Description	Default Value
Use Worst Road Condition	Use "worst" or "modal" road condition value ¹	Modal (not checked)
Use Minimum Road Temperature	Use "minimum" or "average" road temperature value ¹	Average (not checked)
Use Maximum Dewpoint	Use "maximum" or "average" dew point value ¹	Average (not checked)
Use Max Ice Percentage	Use "maximum" or "average" Ice Percentage value ¹	Average (not checked)
Use Minimum Friction	Use "minimum" or "average" friction value ¹	Minimum (checked)
Use Max Waterfilm	Use "maximum" or "average" water film value ¹	Average (not checked)
Model Version	Model Version for mapping the RCAM Surface Description	2
Include Friction/M μ	Calculate M μ from Friction and use this value to downgrade the RwyCC	False (not checked)
Friction to M μ Factor	Factor to convert Marwis Friction value to Grip Coefficient (M μ)	0.51
Friction to M μ Offset	Offset to convert Marwis Friction value to Grip Coefficient (M μ)	0,03
Rime/Frost Temperature Threshold	Threshold for delta between road temperature and dew point for rime/frost (in °C)	1
Dry Snow Ice Percentage Threshold	Threshold for ice percentage to distinguish	90

¹ Worst/Max/Min vs Average/Modal value settings apply to all values in a segment or (if percentual coverage is used) values in a segment fragment

	between dry and wet snow (in %)	
Slush Ice Percentage Threshold	Threshold for ice percentage to distinguish between slush and ice (in %)	50
Slush/Ice Road Temperature Threshold	Threshold for road temperature to distinguish between slush and ice (in °C)	-1
Compact/Rolled Snow WFH Threshold	Threshold for water film (in µm) for "compact or rolled snow"	200
Use Percentual Coverage (GRF/RCAM)	Use percentual coverage (compliant with GRF/RCAM) instead of average or "worst" values to calculate the segment results	True (checked)
Minimum Per Cent Coverage	Minimum percent coverage for contamination for RCAM / SNOWTAM / NOTAM reporting	10 NOTE: SET TO 25 FOR NAV CANADA NOTAM

The settings here are used as default when creating a new report from a measurement drive – but can be overwritten for every report (see below).

Note: if an Airport (for SNOWTAM) reporting is configured, additional parameters can (and should) be configured:

3.2.2 Runway Third Configuration

To edit a runway third, please mark/select the respective third, and click "edit".

ViewMondo®
☰

Edit Runway Segment

Name

Check Direction

Direction (°)


Direction Tolerance (°)

Check Speed

Minimum Speed (m/s)

Corner 1 Lat / Long	<input type="text" value="49,21429"/>	<input type="text" value="7,09488"/>	87,03 ° / 0,6873 km
Corner 2 Lat / Long	<input type="text" value="49,21461"/>	<input type="text" value="7,10433"/>	177,12 ° / 0,0579 km
Corner 3 Lat / Long	<input type="text" value="49,21409"/>	<input type="text" value="7,10437"/>	267,97 ° / 0,6883 km
Corner 4 Lat / Long	<input type="text" value="49,21387"/>	<input type="text" value="7,0949"/>	358,22 ° / 0,0467 km

letzte Aktualisierung: 28.01.2020 15:55:58


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Note: the direction and distance information next to the corner coordinates are calculated based on the configured coordinates when this configuration screen is opened, and show the direction and distance to the next corner, i.e. next to Corner 1 lat/long the direction and distance to Corner 2 is shown and so on – in clockwise direction. These values are NOT updated when the coordinates are changed – to view the changed values, please save the changed parameters and re-open the edit segment dialog.

Besides configuring the GPS coordinates for the runway segment outline (see below), following parameters can be set:

Parameter	Description	Default Value
Name	Name of the runway segment (as shown on the report)	A / B and C for the 3 Segments

Check Direction	Check if the vehicle was moving in the specified (or opposite) direction, i.e. if the vehicle was driving along the runway, in order for a measurement to be taken into account	No (not checked)
Direction	The direction / heading of the runway in °. Note: checking will be done for the direction and the reverse direction	0
Direction Tolerance	The tolerance (in °) when checking for the vehicle direction	0
Check Speed	Check if the vehicle was moving at least with the configured speed (in m/s)	No (not checked)
Minimum Speed	The minimum speed (in m/s) the vehicle has to move in order for a measurement to be taken into account	0

For each segment, the 4 corners of the segment need to be configured. The order of the corners should be clockwise or counterclockwise, not random, so that drawing a line from corner 1 to 2 to 3 to 4 and back to 1 forms a closed polygon.

Using the spots from the google map example above, this would for example be (when going clockwise, and starting with the "upper left" corner of each segment)

For the first (left) segment (A)

Corner 1 = Spot 1

Corner 2 = Spot 3

Corner 3 = Spot 4

Corner 4 = Spot 2

For the second (middle) segment (B)

Corner 1 = Spot 3

Corner 2 = Spot 5

Corner 3 = Spot 6

Corner 4 = Spot 4

For the third (right) segment (C)

Corner 1 = Spot 5

Corner 2 = Spot 7

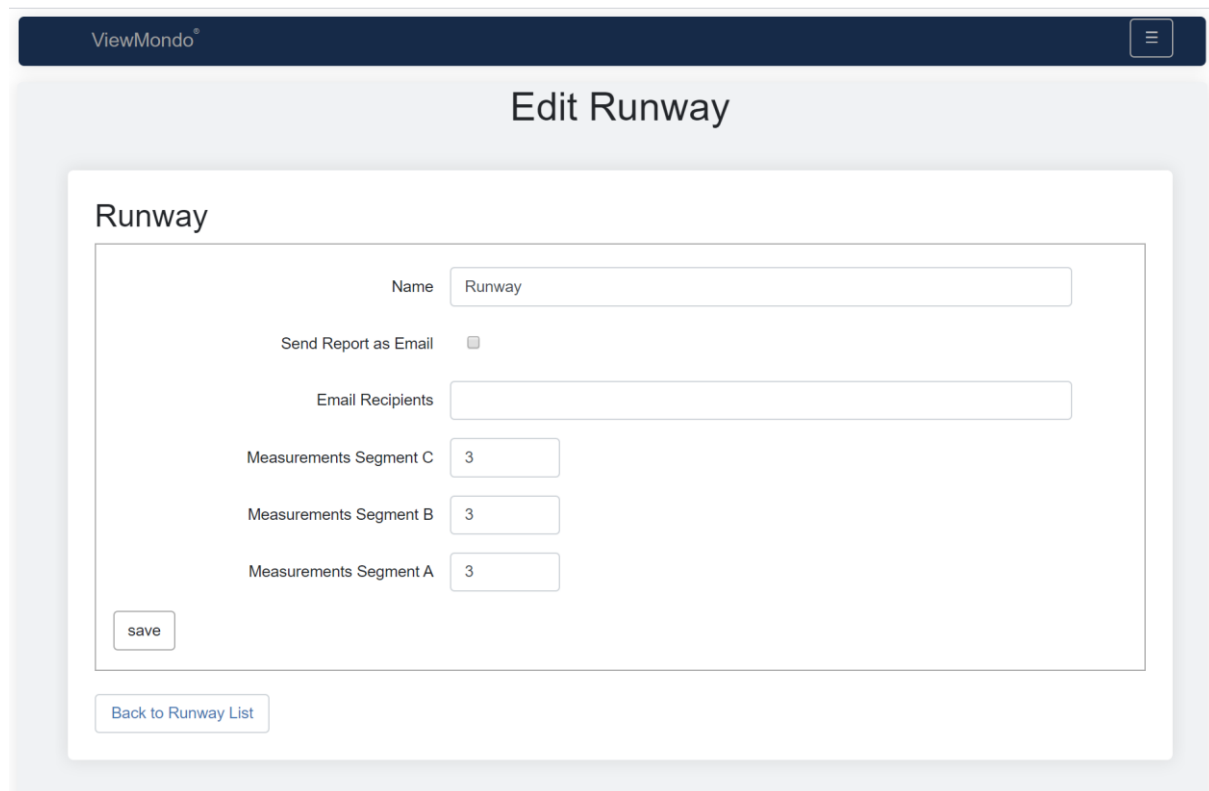
Corner 3 = Spot 8

Corner 4 = Spot 6

3.3 Runway for Spot RwyCC

NOTE: Spot RwyCC is not GRF compliant, and this option is now disabled per default (see "SNOWTAM Settings")

When setting up a runway, the name for the runway, and the number of measurement spots per segment are configured for the runway.



The screenshot shows the 'Edit Runway' interface in ViewMondo. The form is titled 'Runway' and contains the following fields and controls:

- Name: Runway
- Send Report as Email:
- Email Recipients: [Empty text box]
- Measurements Segment C: 3
- Measurements Segment B: 3
- Measurements Segment A: 3
- save button
- Back to Runway List button

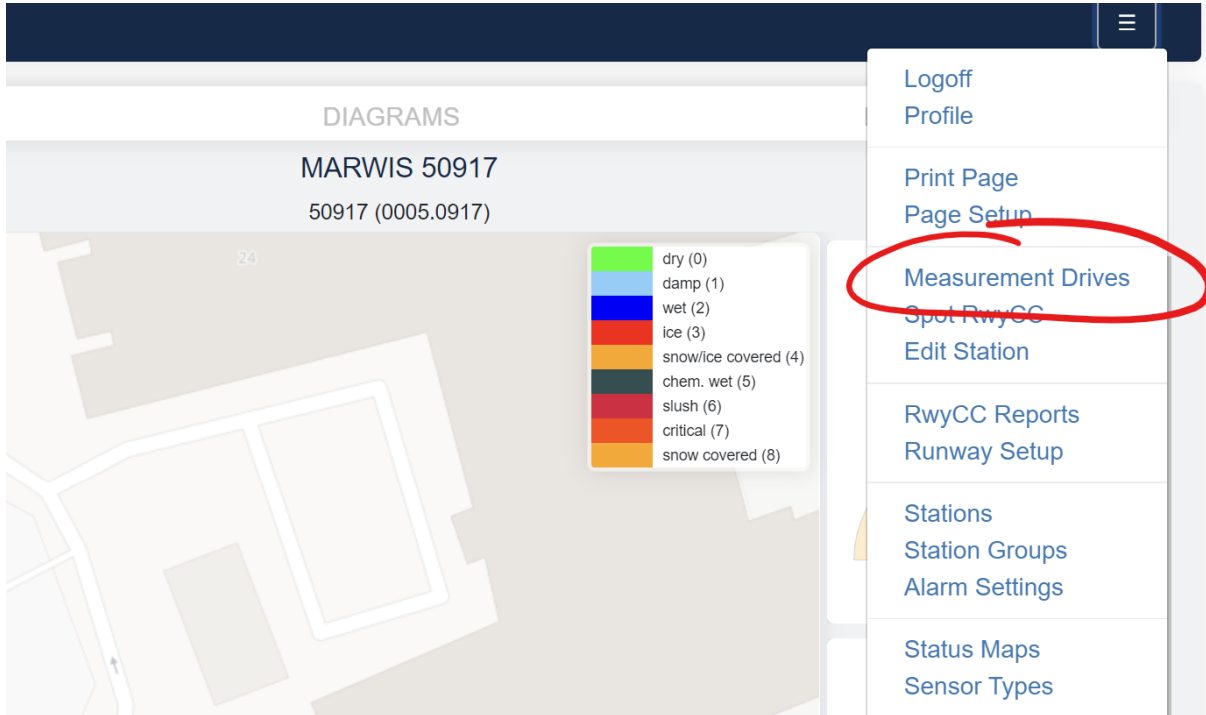
Note that the number of measurement spots cannot be changed after a runway has been created (otherwise the report data for this runway might be inconsistent with the runway setup).

The valid number of measurements for each segment is 1 to 4 measurements.

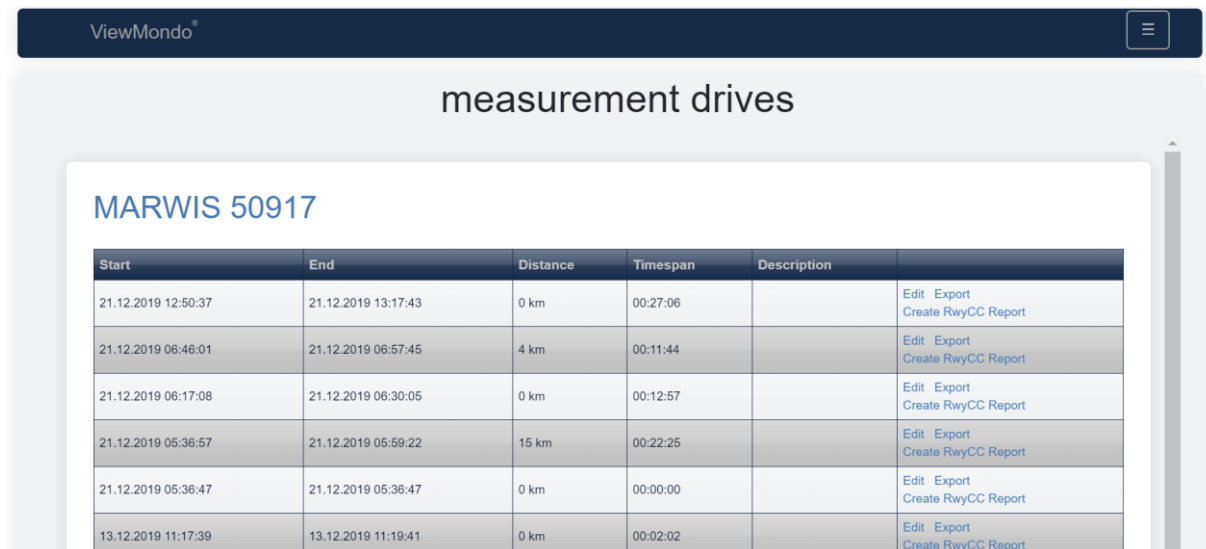
4 Creating a RwyCC Report from a Measurement Drive

4.1 Select Measurement Drive

To create a Measurement Drive RwyCC report, open the list of measurement drives from the context menu:



Here you will find an option to "Create RwyCC Report" from a measurement drive



Selecting this option will prepare the data from the measurement drive and present it as follows:



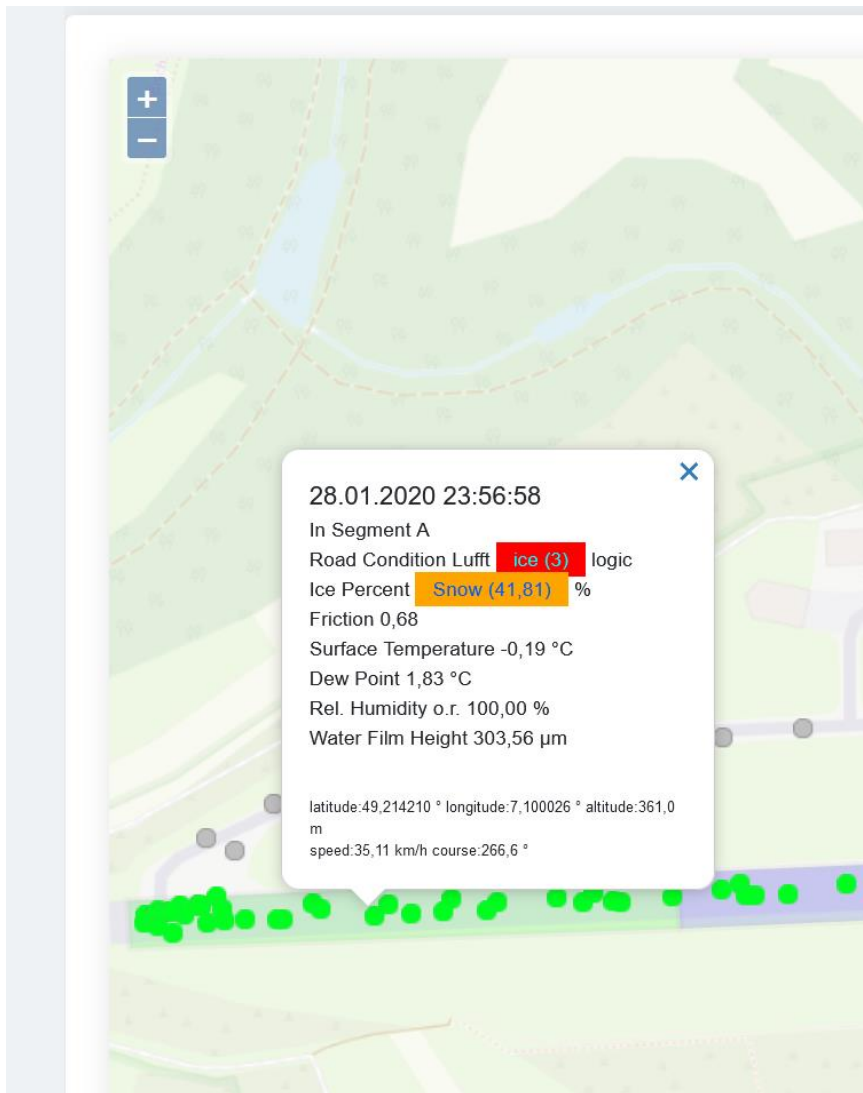
4.2 Measurement Spots on the Map

The measurement spots from the measurement drive are shown on a map. Green spots match the criteria (are within a segment, and – if configured – match the constrains regarding direction and/or minimum speed)

The map is zoomable.

The outline of the 3 segments are shown in opaque colors (but might be hidden if many measurement spots are shown).

Scrolling over a measurement spot shows all the data from this spot, and in which segment the spot is located – or (for the gray spots) why the spot was excluded from analysis.



4.3 Aggregated values for each segment

Below the map, the aggregated values for the segments are shown – i.e. for every sensor channel, the “worst”, “average or modal” and “best” value is displayed.

	A			B			C		
	worst	avg/modal	best	worst	avg/modal	best	worst	avg/modal	best
Ambient Temperature °C	---	---	---	---	---	---	---	---	---
Rel. Humidity o.r. %	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00
Dew Point °C	1,73	2,12	2,92	1,90	2,22	2,59	1,71	2,37	3,10
Surface Temperature °C	-0,51	-0,10	0,29	-0,33	-0,05	0,16	-0,34	0,10	0,48
Road Condition Luftt logic	Ice (3)	snow covered (8)	snow covered (8)	Ice (3)	Ice (3)	snow covered (8)	Ice (3)	Ice (3)	snow covered (8)
Ice Percent %	Ice (100,00)	Ice (59,06)	Snow (21,41)	Ice (98,99)	Ice (52,60)	Snow (21,58)	Ice (100,00)	Ice (60,01)	Snow (33,06)
Water Film Height µm	975,14	597,68	200,85	721,25	407,70	230,39	842,99	388,13	95,50
Friction	0,26	0,48	0,73	0,45	0,60	0,73	0,37	0,59	0,74

4.4 Report Parameters

The parameters for this report can be displayed/edited by clicking the “parameters” button

Parameter

Use Worst Road Condition

Use Minimum Surface Temperature

Use Maximum Dew Point

Use Max Ice Percentage

Use Minimum Friction

Use Max Waterfilm

Model Version

Include Friction/M μ

Friction to M μ Factor

Friction to M μ Offset

Rime/Frost Temperature Threshold

Dry Snow Ice Percentage Threshold

Slush Ice Percentage Threshold

Slush/Ice Surface Temperature Threshold

Compact/Rolled Snow WFH Threshold

Use Percentual Coverage (GRF/RCAM)

Minimum Per Cent Coverage

apply changed parameters

The default settings from the runway configuration are shown. To save any changes and apply the changes to the report, please check the “apply changed parameters” button.

4.5 Used Measure Values (not using percentual coverage)

Below the parameters (usually only the “Parameter” button), the measure values used for further calculation of the report (depending on the parameter settings) are shown.

This is either the “average” (or modal) value over all measurements in the given segment, or the “worst” (e.g. worst road condition, minimum road temperature, maximum dewpoint temperature, maximum ice percentage, minimum friction, maximum water film), depending on the selected parameter option.

Used Measure Values			A	B	C
Road Condition Luft	logic	Modal	wet (2)	wet (2)	wet (2)
Surface Temperature	°C	Avg	1,92	1,84	1,60
Dew Point	°C	Avg	3,79	3,81	3,62
Ice Percent	%	Avg	no ice (0,00)	no ice (0,00)	Slush (8,35)
Friction		Min	0,74	0,78	0,67
Water Film Height	µm	Avg	158,40	123,28	133,19

4.6 Percentual Coverage

If the parameter "Use Percentual Coverage (GRF/RCAM) is selected, the distribution of contamination type, water film, surface description and (if activated) grip factor is calculated over the runway segments, and the "worst" condition that covers at least 25% of a runway third (compliant with GRF/RCAM regulations) is pre-selected for the RwyCC report values table

Percentual Coverage	A			B			C		
Measurement Coverage	31 %			26 %			44 %		
Contamination Type	rime or frost covered		25.81 %	rime or frost covered		57.69 %	rime or frost covered		75.00 %
	slush		29.03 %	slush		19.23 %	slush		13.04 %
	ice		32.26 %	ice		3.85 %	ice		4.55 %
Contamination Depth	below 3 mm		100.00 %	below 3 mm		100.00 %	below 3 mm		100.00 %
	min: 0,201 avg: 0,499 max: 0,975 mm			min: 0,230 avg: 0,408 max: 0,721 mm			min: 0,114 avg: 0,410 max: 0,843 mm		
	good (5)		54.84%	good (5)		76.92%	good (5)		88.64%
Surface Description	medium (3)		12.90%	medium (3)		19.23%	medium (3)		6.82%
	poor (1)		32.26%	poor (1)		3.85%	poor (1)		4.55%
	Less than Poor (0)		9.68%	Less than Poor (0)		0.00%	Less than Poor (0)		0.00%
Grip Coefficient M _μ	good to medium (4)		38.71%	good to medium (4)		46.15%	good to medium (4)		38.64%
	medium (3)		16.13%	medium (3)		19.23%	medium (3)		43.18%
	poor (1)		6.45%	poor (1)		26.92%	poor (1)		13.64%
Grip Coefficient M _μ	min: 0.393 avg: 0.394 max: 0.398			min: 0.399 avg: 0.400 max: 0.401			min: 0.394 avg: 0.395 max: 0.398		
	min: 0.292 avg: 0.321 max: 0.337			min: 0.351 avg: 0.369 max: 0.388			min: 0.350 avg: 0.368 max: 0.384		
	min: 0.207 avg: 0.221 max: 0.235			min: 0.282 avg: 0.313 max: 0.341			min: 0.294 avg: 0.322 max: 0.348		
Grip Coefficient M _μ	min: 0.168 avg: 0.179 max: 0.189			min: 0.262 avg: 0.267 max: 0.285			min: 0.260 avg: 0.270 max: 0.288		

The entries matching these criteria (worst condition with coverage of at least 25% of the runway segment) is highlighted, and the respective value is pre-selected for the RwyCC Report below.

Measurement Coverage: the coverage of the runway segment with measure values. Results are more reliable the higher the coverage is.

4.7 RwyCC Report Values

Last, the actual RwyCC data is shown. This form is pre-set using the values and parameters

		A	B	C
Contamination Type	enum	Ice	rime or frost covered	rime or frost covered
Contamination Depth	mm	0,975	0,721	0,843
Surface Description	enum	Ice	compact snow T>=-15	frost/rime
Grip Coefficient M _μ		37,8	26,7	32,2
RwyCC from Surface Description		1	3	5
RwyCC from M _μ		4	2	3
RwyCC from Pilot Report		---	---	---
RwyCC		1	2	3
Comment				

The values in this report (except the RwyCC from Surface Description and M_μ, which are derived values) can be edited.

A comment can be added to the report values.

The (pre-set) values are calculated as follows:

4.7.1 Contamination Type:

Here, the “used measure values” are combined to pre-set the “contamination type” value as follows (if “Use Percentual Coverage” is selected, this calculation is done on every segment fragment instead of the “used measure values”).

Parameters can be changed to set the behavior.

Clear and Dry

If the **road condition** is “dry” (0),
the value is set to “clear and dry”

Wet (Damp)

If the **road condition** is “damp” (1),
the value is set to “wet (damp)”

Wet (or water patches)

If the **road condition** is “wet” (2) OR “chem wet” (5),
the value is set to “wet”

Rime or Frost Covered

If the **road condition** is (“ice” (3) OR “ice/snow” (4))
AND (**road temperature** – **dewpoint**) < **Rime/Frost Temperature Threshold** (default 1)),
the value is set to “rime or frost covered” (note: dewpoint value must be valid/available)

Dry Snow

Version 1:

If the **road condition** is “snow” (8)
AND (**ice percentage** > **Dry Snow Ice Percentage Threshold** (default: 90)),
the value is set to “Dry Snow”

Version 2:

If ((the **road condition** is “snow” (8))
AND (**ice percentage** <= **Dry Snow Ice Percentage Threshold** (default: 90))
AND (**road temperature** < **Slush/Ice Road Temperature Threshold** (default -1))
AND (**water film** > **Compact/Rolled Snow WFH Threshold** (default: 200)))
OR ((the **road condition** is “ice/snow” (4))
AND (**road temperature** – **dewpoint**) >= **Rime/Frost Temperature Threshold** (default 1))
AND (**road temperature** < **Slush/Ice Road Temperature Threshold** (default -1))
AND (**ice percentage** >= **Dry Snow Ice Percentage Threshold** (default: 90))),
the value is set to “Dry Snow”

Wet Snow

Version 1:

If the **road condition** is (“snow” (8) OR “ice/snow” (4))
AND (**ice percentage** <= **Dry Snow Ice Percentage Threshold** (default: 90))
AND (**ice percentage** >= **Slush/Ice Percentage Threshold** (default: 50)),
The value is set to “Wet Snow”

Version 2:

If ((the **road condition** is "snow" (8))
 AND (**road temperature** < Slush/Ice Road Temperature Threshold (default -1))
 AND (**ice percentage** < Dry Snow Ice Percentage Threshold (default: 90)))
 OR ((the **road condition** is "ice/snow" (4))
 AND (**road temperature** - **dewpoint**) >= Rime/Frost Temperature Threshold (default 1))
 AND (**road temperature** <= Slush/Ice Road Temperature Threshold (default -1))
 AND (**ice percentage** < Dry Snow Ice Percentage Threshold (default: 90))),
 The value is set to "Wet Snow"

Slush

Version 1:

If the **road condition** is ("ice" (3) OR "ice/snow" (4))
 AND (**road temperature** > Slush/Ice Road Temperature Threshold (default -1))
 AND (**ice percentage** < Slush/Ice Percentage Threshold (default: 50)),
 The value is set to "Slush"

Version 2:

If ((the **road condition** is "snow" (8))
 AND (**water film** < Compact/Rolled Snow WFH Threshold (default: 200)))
 AND (**road temperature** >= Slush/Ice Road Temperature Threshold (default -1))
 AND (**ice percentage** < Slush/Ice Percentage Threshold (default: 50)))
 OR ((the **road condition** is "ice/snow" (4))
 AND (**road temperature** - **dewpoint**) >= Rime/Frost Temperature Threshold (default 1))
 AND (**road temperature** >= Slush/Ice Road Temperature Threshold (default -1))
 AND (**ice percentage** < Slush/Ice Percentage Threshold (default: 50)))
 The value is set to "Slush"

Ice

Version 1:

If the **road condition** is "ice" (3)
 AND (**ice percentage** >= Slush/Ice Percentage Threshold (default: 50)),
 The value is set to "Ice"

Version 2:

If the **road condition** is "ice" (3)
 AND (**road temperature** - **dewpoint**) >= Rime/Frost Temperature Threshold (default 1))
 The value is set to "Ice"

Compact or rolled snow

If the **road condition** is "snow" (8)
 AND (**ice percentage** > Dry Snow Ice Percentage Threshold (default: 90))
 AND (**water film** > Compact/Rolled Snow WFH Threshold (default: 200))
 The value is set to "Compact or Rolled Snow"

February 2020:

Additional logic for all cases not covered by the above

If (the **water film** > 0)

If ((the **road condition** is
 ("ice" (3)
 OR "ice/snow" (4)

```

    OR "slush (6)"
    OR "critical (7)"
    OR "snow (8)"
  ))
  AND (ice percentage > 1)
)
  The value is set to "Slush"
Else
  The value is set to "Wet"
Else
  The value is set to "Dry"

```

Note: the calculation does not cover all possible values for "Contamination Type".

In any case, the preset value should be double checked and corrected to the value observed by the operator!

4.7.2 Water Depth

The water depth – as measured by the Marwis – converted to mm (if the measurement channel used was not in mm).

If "Use Max Waterfilm" parameter is set, the maximum (highest/worst) water film value measurement within the given segment is used. Otherwise the average water film value over all measurements within the given segment is calculated.

4.7.3 Surface Description

The surface description is preset from the Contamination Type (F)) and the Water Depth (G)) value or the road temperature measurement as follows:

If **Contamination Type** is "dry"
the value is set to "**clear and dry**"

If **Contamination Type** is "damp":
if (water film < 3mm) the value is set to "**damp or wet <= 3mm**"
else (water film > 3 mm) the value is set to "**wet and slippery**"

If **Contamination Type** is "rime or frost covered":
if (water film < 3mm) the value is set to "**rime**"
else (water film > 3 mm) the value is set to "**wet and slippery**"

If **Contamination Type** is "Dry Snow":
if (water film < 3mm) the value is set to "**dry or wet snow <= 3mm**"
else (water film > 3 mm) the value is set to "**dry or wet snow > 3mm**"

If **Contamination Type** is "Wet Snow":
 if (water film < 3mm) the value is set to "**dry or wet snow <= 3mm**"
 else (water film > 3 mm) the value is set to "**dry or wet snow > 3mm**"

If **Contamination Type** is "Slush":
 if (water film < 3mm) the value is set to "**slush <= 3mm**"
 else (water film > 3 mm) the value is set to "**wet or slush > 3mm**"

If **Contamination Type** is "Ice":
 the value is set to "**ice**"

If **Contamination Type** is "compact or rolled snow":
 if (road temperature < -15°C) the value is set to "**compact snow T <= -15**"
 else (road temperature > -15°C) the value is set to "**compact snow T >= -15**"

In all other cases, the result is set to "Unknown" (---).

Note: In any case, the preset value should be double checked and corrected to the value observed by the operator!

4.7.4 Friction Coefficient

The friction coefficient $M\mu$ is calculated from the Marwis friction value as

$$M\mu = (a * \text{MarwisFriction} + b) * 100$$

With a being the "Friction to $M\mu$ Factor" (default 0.51) parameter and b being the "Friction to $M\mu$ Offset) parameter (default 0.03)

The Runway Condition Code for the segments is re-calculated when values are changed, or the "Re-Calculate" button is pressed.

4.7.5 RwyCC from Surface Description

The surface description is converted to a RwyCC value as follows

Surface Description	RwyCC
Clear and dry	6
Damp or wet <= 3mm	5
Dry or wet snow <= 3 mm	5
Frost/Rime	5
Compact snow T <= -15 °C	4
Compact snow T > -15 °C	3
Dry or wet snow > 3 mm	3
Dry or wet snow over compact snow	3
Wet and slippery	3
Wet or Slush > 3 mm	2
Ice	1

Wet ice/water over compact snow	0
---------------------------------	---

4.7.6 RwyCC from $M\mu$

$M\mu$	RwyCC
≤ 20	0
≤ 25	1
≤ 29	2
≤ 35	3
≤ 39	4
< 70	5
≥ 70	6

4.7.7 RwyCC from Pilot Report

Here, the RwyCC as reported from Pilots (after landing) can be added to the report.

This value might “downgrade” the overall RwyCC, if the reported RwyCC is below/worse than the RwyCC calculated from Surface Description or $M\mu$ factor

4.7.8 Segment RwyCC

The RwyCC value for the segment is calculated from the “worst” available of the 3 RwyCC values (Surface Description, $M\mu$ and Pilot Report RwyCC).

4.8 Saving Report

The report can be saved by clicking the “save” button. All measure values and parameters are saved with this report.

The resulting report is shown after saving. The map only shows the measurement spots that have actually been taken into consideration for data processing (no “gray” spots are shown).



The report (without the map display) can be printed or sent per email.

5 SNOWTAM Reports

Based on "Measurement Drive" reports, SNOWTAM Reports can be created.

5.1 Airport Report Settings

Here, all parameters required for SNOWTAM reporting are configured.

Note: you can configure multiple "Airport Report" templates.



SNOWTAM Report Settings

Name	<input type="text"/>
Send Report as Email	<input checked="" type="checkbox"/>
Email Recipients	<input type="text"/>
Email Subject	SW<geo-des><report-num> <icao-code> <report-mdt>
Use Specific SNMP Server	<input checked="" type="checkbox"/>

Sender Name	<input type="text"/>
Sender Email	<input type="text"/>
Smtp Host	<input type="text"/>
Smtp User	<input type="text"/>
Smtp Password	<input type="password"/>
Use SSL	<input type="checkbox"/>
Reply To	<input type="text"/>

Geographical Designator	<input type="text"/>
ICAO Code	<input type="text"/>
Report Header Template	GG wwwwww xxxxxxxx yyyyyyy <tx-dt> zzzzzzzz SW<geo-des><report-num> <icao-code> <report-mdt> (SNOWTAM <report-num> <icao-code>
Report Runway Template	<rcr-mdt> <rw-des> <rwcc> <percentage> <depth> <contamination> <width>
Report Situation Awareness Template	<sit-aware>
Report Footer Template)

[back](#)

The parameter are as follows:

- **Name:** name of the airport
- **Send report as email:** send the SNOWTAM Report as Email
- **Email Subject:** Template for email subject (see below)
- **Email Recipients:** one or more email recipient for the SNOWTAM report
 - **Use specific SMTP Server:** if activated, specific SMTP server settings (email account) can be used to send the SNOWTAM report. Otherwise, the default ViewMondo SMTP settings are used (see system administrator manual)
 - **Sender Name:** Email Sender Name
 - **Sender Email:** Email Sender Email Address
 - **SMTP Host:** the SMTP host name or ip address
 - **SMTP User:** the SMTP user (usually same as Email address, but might be different depending on your SMTP server)
 - **SMTP Password:** the password
 - **Use SSL:** use SSL encrypted connection to send email
 - **Reply To:** (additional) "Reply To" addresses
- **Geographical designator:** the 2 character ICAO Country/Geographical designator. Usually the same as the first 2 characters of the ICAO Airport Code
- **ICAO Code:** the 4 character ICAO airport code
- **Report Header Template:** template for the report header (see below)
- **Report Runway Template:** template for a runway entry in the report (see below)
- **Report Situation Awareness Template:** template for the "situation awareness" section of the report (see below)
- **Report Footer Template:** template for the report footer (see below)

SNOWTAM Report generation is template based, so it can be adjusted to the specific needs of each airport and country where the reports are used.

The templates are based on the "Examples of SNOWTAM" as found in chapter 5 of the "ICACO EUR Doc 41 Guidance on the Issue of SNOWTAM" document.

Following tags in the templates are supported and will be replaced by the respective values when a report is generated (except the <tx-dt> which is replaced when the report is send out):

- Airport Specific:
 - <geo-des>: 2 letter "Geographical Designator" as configured for the airport
 - <icao-code>: 4 letter ICAO airport code as configured for the airport
- Report specific:
 - <tx-dt>: the transmission day and time (ddhhmm) in UTC – will be set/replaced when the report is send by email
 - <report-num>: the report serial number
 - <report-mdt>: the report creation time (MMddhhmm) in UTC
- Runway specific:
 - <rwy-des>: the (3 character?) "lower runway designator" as configured for the respective runway
 - <rcr-mdt>: the runway condition report creation time (MMddhhmm) in UTC for the specific runway entry
 - <rwycc>: the runway condition code for the runway thirds

- **<percentage>**: the percentual coverage for the runway thirds
- **<depth>**: the contamination depth for the runway thirds
- **<contamination>**: the contamination / condition description for the runway thirds
- **<width>**: (if applicable) the width of runway to which the runway condition code applies, if less than published width
- **Situation Awareness:**
 - **<sit-aware>**: the situation awareness text as entered for each runway report
 -

Especially the "Report Header Template" contains parts (xxxxx/yyyyyy/zzzzz) that need to be replaced (or removed) to fit the specific needs of an airport. For Example:

Name

Send Report as Email

Email Recipients

Email Subject

Use Specific SNMP Server

Geographical Designator

ICAO Code

Report Header Template

Report Runway Template

Report Situation Awareness Template

Report Footer Template

[back](#)

5.2 Runway Settings

If an Airport is configured, additional parameters can (and should) be configured for a runway:

Runway 09L

Name

Include in Airport SNOWTAM

Designator

- **Include in Airport SNOWTAM:** include this runway (i.e. the reports) in Airport SNOWTAM/NOTAM reports
- **Designator:** the (lower runway) designator for this runway

5.3 RwyCC Report

If an airport is configured, and the runway is also configured for SNOWTAM reporting, the (Measurement drive) RwyCC Report will contain additional information:

		A	B	C
Contamination Type	enum	Ice	rime or frost covered	rime or frost covered
Contamination Depth	mm	0.975	0.721	0.843
Surface Description	enum	Ice [ICE]	compact snow T>=-15 [COMPACTED SN	frost/rime [FROST]
RwyCC from Surface Description		1	3	5
RwyCC from Pilot Report		---	---	---
RwyCC		1	3	5
Per Cent Coverage	%	38.46	19.23	90.91
Runway Width for Report		---		
Situation Awareness	I)	RWY 09L REDUCED TO nnnn.	<input style="width: 50px;" type="text" value="+"/>	
	J)	RWY 09L DRIFTING SNOW.	<input style="width: 50px;" type="text" value="+"/>	
	K)	RWY 09L LOOSE SAND.	<input style="width: 50px;" type="text" value="+"/>	
	L)	RWY 09L CHEMICALLY TREATED.	<input style="width: 50px;" type="text" value="+"/>	
	M)	RWY 09L SNOW BANK xxx.	<input style="width: 50px;" type="text" value="+"/>	
	N)	TWY 09L SNOW BANK.	<input style="width: 50px;" type="text" value="+"/>	
	O)	RWY 09L ADJ SNOW BANKS.	<input style="width: 50px;" type="text" value="+"/>	
	P)	TWY 09L POOR.	<input style="width: 50px;" type="text" value="+"/>	
	R)	APRON nnnn POOR.	<input style="width: 50px;" type="text" value="+"/>	
Comment		<input type="text"/>		

Additional input fields are:

Per Cent Coverage: the percentual coverage can be edited here

Runway Width for Report: additional SNOWTAM (item H)) information for runway width

Situation Awareness: the "situation awareness" (SNOWTAM items I...T) information.

Pre-formulated text elements for SNOWTAM Items I...R can be edited and added to the situation awareness element, which then can also be edited so free text (SNOWTAM Item S) can be entered here.

Below the RCAM report result table an additional "SNOWTAM" result table is shown:

SNOWTAM Item		A/B/C
A)	Location Indicator	EADD
B)	Assessment Time	06241254
C)	Designator	09L
D)	RWYCC	1/2/3
E)	Per Cent Coverage	50/25/100
F)	Contamination Depth	01/01/01
G)	Condition Description	ICE/COMPACTED SNOW DRY/FROST

Here the actual values for the SNOWTAM report related to this runway are shown.

Note: optional items H) and I)...T) are only shown if entered by user.

After saving the report, the data from this report can (optional with other runway data) be used to generate a SNOWTAM report.

Below the result table, additional button(s) "create SNOWTAM report <name>" is/are shown (for each configured report template one button)

SNOWTAM Item		A/B/C
B)	Assessment Time	10210804
C)	Designator	09L
D)	RWYCC	1/3/5
E)	Per Cent Coverage	50/25/100
F)	Contamination Depth	01/01/01
G)	Condition Description	ICE/COMPACTED SNOW DRY/FROST
I)...T)	Situation Awareness	RWY 09L DRIFTING SNOW.

print

create SNOWTAM report Demo Report 1

measurement drives

5.4 SNOWTAM Report

After clicking on "create SNOWTAM report", a dialog to select the Runway Condition Code reports for SNOWTAM is shown if multiple runways are configured for this airport.

Test Airport

Select RwyCC Reports for SNOWTAM

Runway 2 Friday, June 25, 2021 3:39:14 PM

Runway 1 Friday, June 25, 2021 3:10:44 PM

If only one runway is configured, the SNOWTAM report is created and presented for editing.

User:

Email Subject:

Email Recipients:

Report Generation Date/Time:

Report Transmission Date/Time:

Report Number:

Report Content:

The report can be edited as long as it has not been saved yet.

The "Email Subject" and the "Email Recipients" can be edited.

The "Report Number" can be changed

The "Report Content" can be freely edited

Note that changing the "Report Number" will re-set the "Email Subject" and the "Report Content" from the template, since both might contain the "Report Number" !

Once the report has been saved, it can not be modified by the user anymore.

User	Airport
Email Subject	SWEA0005 EADD 06251546
Email Recipients	hotline@viewmondo.com
Report Generation Date/Time	Friday, June 25, 2021 3:46:54 PM
Report Transmission Date/Time	---
Report Number	0005
Report Content	<pre>GG EADBZQZX EADNZQZX EADSZQZX <tx-dt> EADDYNYX SWEA0005 EADD 06251546 (SNOWTAM 0005 EADD 06251539 09R 1/1/5 25/25/100 01/01/01 ICE/ICE/SLUSH 06251510 09L 1/2/3 30/25/100 01/01/01 ICE/COMPACTED SNOW DRY/FROST 45 RWY 09R ADJ SNOW BANKS. DRIFTING SNOW. RWY 09L LOOSE SAND.)</pre>
<input type="button" value="send email"/>	
back	

Note: the <tx-dt> tag is replaced when the report is sent per email. If you do not plan to send the report, please either remove that tag from the template (see Airport settings) or manually override (or remove) it from the Report Content.

If a new report is "send", it is also saved at the same time.

If a saved report has not been send, it can be "send" (see above), and the <tx-dt> tag is replaced by the respective date/time:

User	<input type="text" value="Airport"/>
Email Subject	<input type="text" value="SWEA0005 EADD 06251546"/>
Email Recipients	<input type="text" value="hotline@viewmondo.com"/>
Report Generation Date/Time	<input type="text" value="Friday, June 25, 2021 3:46:54 PM"/>
Report Transmission Date/Time	<input type="text" value="Friday, June 25, 2021 5:51:57 PM"/>
Report Number	<input type="text" value="0005"/>
Report Content	<pre>GG EADBZQZX EADNZQZX EADSZQZX 251551 EADDYNYX SWEA0005 EADD 06251546 (SNOWTAM 0005 EADD 06251539 09R 1/1/5 25/25/100 01/01/01 ICE/ICE/SLUSH 06251510 09L 1/2/3 50/25/100 01/01/01 ICE/COMPACTED SNOW DRY/FROST 45 RWY 09R ADJ SNOW BANKS. DRIFTING SNOW. RWY 09L LOOSE SAND.)</pre>

[back](#)

Once the report has been sent, the Report Transmission Date/Time is set, and will not be modified by resending the email. However, the report can be resent unmodified (only the email recipient(s) may be edited).

6 Creating a NAV Canada NOTAM report

To create NAV Canada NOTAM reports, the NAV Canada reporting must be enabled in the "General Report settings" (see 3.1 General Report settings), and one or more runways for "measurement drives" must be configured (see 3.2 Runway for Measurement Drive).

For a NAV Canada NOTAM report, all runways need to be reported in a single NOTAM. So for each runway, a NOTAM RCR report has to be created from the measurement drive list.

NOTE: for NAV Canada NOTAM reporting, the parameter "Minimum Per Cent Coverage" (see 3.2.1 Runway Reporting Parameter). The runway must also be configured for SNOWTAM/NOTAM Reporting, and the runway designator has to be configured matching the naming rules for NAV Canada (e.g. RWY-18/36)

6.1 NAV Canada NOTAM RCR


The measurement drive list for the respective mobile sensor will then show an option to "Create NOTAM report" as well as the option to "Create RwyCC Report"

Start	End	Distance	Timespan	Description	
02.06.2022 14:58:34	02.06.2022 15:06:44	3 km	00:08:10		Edit Export Create NOTAM Report Create RwyCC Report
02.06.2022 12:04:37	02.06.2022 12:18:19	2 km	00:13:42		Edit Export Create NOTAM Report Create RwyCC Report
02.06.2022 11:12:01	02.06.2022 11:25:02	2 km	00:13:01		Edit Export Create NOTAM Report Create RwyCC Report
02.06.2022 09:16:39	02.06.2022 10:44:21	15 km	01:27:42		Edit Export Create NOTAM Report Create RwyCC Report

Clicking on "Create NOTAM report" will show the NOTAM report details.

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Aircraft Movement Surface Condition Report



Report Data Date/Time from 10.12.2021 05:20:27 to 10.12.2021 05:38:14

Parameter

No Winter Maintenance for Runway RWY-18/36

Airport Location Indicator: CYWG		Report #:			
RUNWAY: RWY-18/36	Valid FM: 02.12.2022 07:30:3	Valid TO: 02.12.2022 15:30:3	CLEARED WIDTH: <input checked="" type="checkbox"/> NONE <input type="checkbox"/> FULL <input type="checkbox"/> CENTRED: FT		
<input type="checkbox"/> SLIPPERY WHEN WET			<input type="checkbox"/> OFFSET:		
LOWER THRESHOLD	MIDPOINT		HIGHER THRESHOLD		
A Measurement Courses: 13%	B Measurement Courses: 44%		C Measurement Courses: 36%		

Based on the measure values, the contaminant type and coverage will be (within the limitations of our calculation models) pre-set. This can be changed by the user as appropriate.

LOWER THRESHOLD			MIDPOINT			HIGHER THRESHOLD		
A Measurement Coverage 8 %			B Measurement Coverage 11 %			C Measurement Coverage 14 %		
Runway Surface Description	%Coverage	CC	Runway Surface Description	%Coverage	CC	Runway Surface Description	%Coverage	CC
DRY	N/A	6	DRY	N/A	6	DRY	N/A	6
FROST	N/A	5	FROST	N/A	5	FROST	N/A	5
WET	20	5	WET	40	5	WET	40	5
SLUSH	10	5	SLUSH	N/A	5	SLUSH	N/A	5
DRY SNOW <= 1/8 in (3mm) depth	N/A	5	DRY SNOW <= 1/8 in (3mm) depth	N/A	5	DRY SNOW <= 1/8 in (3mm) depth	N/A	5
WET SNOW <= 1/8 in (3mm) depth	N/A	5	WET SNOW <= 1/8 in (3mm) depth	N/A	5	WET SNOW <= 1/8 in (3mm) depth	N/A	5
COMPACTED SNOW (-15°C and colder air temp.)	N/A	4	COMPACTED SNOW (-15°C and colder air temp.)	N/A	4	COMPACTED SNOW (-15°C and colder air temp.)	N/A	4
SLIPPERY WHEN WET	N/A	3	SLIPPERY WHEN WET	N/A	3	SLIPPERY WHEN WET	N/A	3
DRY SNOW on COMPACTED SNOW	N/A	3	DRY SNOW on COMPACTED SNOW	N/A	3	DRY SNOW on COMPACTED SNOW	N/A	3
WET SNOW on COMPACTED SNOW	N/A	3	WET SNOW on COMPACTED SNOW	N/A	3	WET SNOW on COMPACTED SNOW	N/A	3
DRY SNOW > 1/8 in (3mm) depth	0	3	DRY SNOW > 1/8 in (3mm) depth	0	3	DRY SNOW > 1/8 in (3mm) depth	0	3
WET SNOW on > 1/8 in (3mm) depth	0	3	WET SNOW on > 1/8 in (3mm) depth	0	3	WET SNOW on > 1/8 in (3mm) depth	0	3
COMPACTED SNOW (warmer than -15°C air temp.)	N/A	3	COMPACTED SNOW (warmer than -15°C air temp.)	N/A	3	COMPACTED SNOW (warmer than -15°C air temp.)	N/A	3
STANDING WATER > 1/8 in (3mm) depth	0	2	STANDING WATER > 1/8 in (3mm) depth	0	2	STANDING WATER > 1/8 in (3mm) depth	0	2
SLUSH > 1/8 in (3mm) depth	0	2	SLUSH > 1/8 in (3mm) depth	0	2	SLUSH > 1/8 in (3mm) depth	0	2
ICE	60	1	ICE	60	1	ICE	60	1
WET ICE	N/A	0	WET ICE	N/A	0	WET ICE	N/A	0
SLUSH on top of ICE	N/A	0	SLUSH on top of ICE	N/A	0	SLUSH on top of ICE	N/A	0
WATER on top of COMPACTED SNOW	N/A	0	WATER on top of COMPACTED SNOW	N/A	0	WATER on top of COMPACTED SNOW	N/A	0
DRY SNOW on top of ICE	N/A	0	DRY SNOW on top of ICE	N/A	0	DRY SNOW on top of ICE	N/A	0
WET SNOW on top of ICE	N/A	0	WET SNOW on top of ICE	N/A	0	WET SNOW on top of ICE	N/A	0

Contaminant: <=1/8"	Contaminant: <=1/8"	Contaminant: <=1/8"
TIME IN UTC: 25.11.2022 07:36 CRFI: (LOWER THR) <input type="checkbox"/> SELECT ONE: <input checked="" type="checkbox"/> Confirm RwyCC <input type="checkbox"/> Downgrade RwyCC <input type="checkbox"/> Upgrade RwyCC	CRFI: (MIDPOINT) <input type="checkbox"/> SELECT ONE: <input checked="" type="checkbox"/> Confirm RwyCC <input type="checkbox"/> Downgrade RwyCC <input type="checkbox"/> Upgrade RwyCC	TEMPERATURE <input type="checkbox"/> CRFI: (HIGHER THR) <input type="checkbox"/> SELECT ONE: <input checked="" type="checkbox"/> Confirm RwyCC <input type="checkbox"/> Downgrade RwyCC <input type="checkbox"/> Upgrade RwyCC
FINAL RWYCC: 1	FINAL RWYCC: 1	FINAL RWYCC: 1

Some of the "Runway Surface Description" items are contamination depth dependent and can only be selected if the contamination is above 3 mm (1/8 inch)

NOTE: the NOTAM report may contain up to 2 "contamination" per runway third. If more than 2 items are selected, the item with the highest "CC" will be removed from the list (so the "worse" conditions will be reported).

All other NOTAM information can be selected and configured as required:

<input type="checkbox"/> CONDITIONS ON RUNWAY
<input type="checkbox"/> OTHER LOCALIZED CONDITIONS ON RUNWAY
<input type="checkbox"/> TREATMENTS
<input type="checkbox"/> RUNWAY REMAINING WIDTH CONDITION AND DEPTH
<input type="checkbox"/> CONDITIONS ADJACENT TO RUNWAY
<input type="checkbox"/> RUNWAY REMARKS

<input checked="" type="checkbox"/> CONDITIONS ON RUNWAY		
1 - SNOW DRIFTS Height: 0 FT 0 IN 2 - WINDROWS Height: 0 FT 0 IN 3 - SNOWBANKS Height: 0 FT 0 IN	L O C A L I Z E D	Distance from Threshold: # Distance 0 FT Threshold From centreline (CL): # Distance 0 FT Direction 0 Along inside runway edge(s): # Distance 0 FT Direction 0 Along cleared width edge(s): # Distance 0 FT Direction 0 Across Specified Intersection: #
<input type="checkbox"/> OTHER LOCALIZED CONDITIONS ON RUNWAY		

<input checked="" type="checkbox"/> OTHER LOCALIZED CONDITIONS ON RUNWAY			
<input type="checkbox"/> ICE PATCHES	<input type="checkbox"/> COMPACTED SNOW PATCHES	<input type="checkbox"/> STANDING WATER PATCHES	Distance from Threshold: 0 FT Threshold

<input checked="" type="checkbox"/> TREATMENTS			
<input type="checkbox"/> CHEMICALLY TREATED	Time applied: 01.01.0001 01:00:00	<input type="checkbox"/> LOOSE SAND	Time applied: 01.01.0001 01:00:00

<input checked="" type="checkbox"/> RUNWAY REMAINING WIDTH CONDITION AND DEPTH		
<input type="checkbox"/> WET	<input type="checkbox"/> COMPACTED SNOW	<input type="checkbox"/> WET ICE
<input type="checkbox"/> FROST	<input type="checkbox"/> DRY SNOW on COMPACTED SNOW 0 IN	<input type="checkbox"/> SLUSH on top of ICE 0 IN
<input type="checkbox"/> SLUSH 0 IN	<input type="checkbox"/> WET SNOW on COMPACTED SNOW 0 IN	<input type="checkbox"/> WATER on top of COMPACTED SNOW 0 IN
<input type="checkbox"/> DRY SNOW 0 IN	<input type="checkbox"/> STANDING WATER 0 IN	<input type="checkbox"/> DRY SNOW on top of ICE 0 IN
<input type="checkbox"/> WET SNOW 0 IN	<input type="checkbox"/> ICE	<input type="checkbox"/> WET SNOW on top of ICE 0 IN

<input checked="" type="checkbox"/> CONDITIONS ADJACENT TO RUNWAY					
<input type="checkbox"/> SNOW BANKS 0 FT 0 IN	Distance and direction(s) outside runway edge(s):	Distance: 0 FT	Direction: 0	Distance: 0 FT	Direction: 0

After saving the report, the values can not be changed anymore.

The NOTAM report for the airport can then be transmitted by clicking "create NOTAM report"

create NOTAM report

This will open a page to verify the NOTAM RCR reports to be included in the Airport NOTAM report:

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Select RCR for NOTAM

CYWG

Select RCR for NOTAM

- Runway RWY-18/36 02.12.2022 07:30:32 [NOTAM-RCR]
- Runway RWY-13/31 01.12.2022 17:01:05 [NOTAM-RCR]

After clicking "select", the NOTAM Airport Report parameter are shown:

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Aircraft Movement Surface Condition Report

Airport Location Indicator: CYWG	Report #:		
		NOTAM End Time:	
		<input checked="" type="checkbox"/> Specified	
		<input checked="" type="checkbox"/> 8 hours	
		<input type="checkbox"/> 24 hours	
		<input type="checkbox"/> Other	
		<input type="text" value="02.12.2022 19:43:07"/>	

RWY-18/36 02.12.2022 06:30 1/1/1
 RWY-13/31 01.12.2022 16:01 NoWinterMaintenance

RUNWAY REMARKS

TAXIWAY REMARKS	<input type="text"/>
APRON REMARKS	<input type="text"/>
GENERAL REMARKS	<input type="checkbox"/> CLEARING/SWEEPING IN PROGRESS
	<input type="checkbox"/> EXP TO BE CLEARED BY <input type="text" value="01.01.0001 01:00:00"/>
	<input type="checkbox"/> CONDITIONS CHANGING RAPIDLY
	Other: <input type="text"/>
	NEXT PLANNED OBS AT <input type="text" value="01.01.0001 01:00:00"/>

NOTAM End time settings and the Runway remarks can be set and saved. After Saving, the report can not be changed anymore – and can be sent to NAV Canada:

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Aircraft Movement Surface Condition Report

Airport Location Indicator: CYWG	Report #:		
			NOTAM End Time: <input checked="" type="checkbox"/> Specified <input checked="" type="checkbox"/> 8 hours <input type="checkbox"/> 24 hours <input type="checkbox"/> Other 02.12.2022 19:44:37

RWY-18/36 02.12.2022 06:30 1/1/1
 RWY-13/31 01.12.2022 16:01 NoWinterMaintenance

RUNWAY REMARKS

Send NOTAM

If the transmission was successful, the reply from NAV CANADA is shown

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☰

Aircraft Movement Surface Condition Report

Airport Location Indicator: CYWG	Report #:		
			NOTAM End Time: <input checked="" type="checkbox"/> Specified <input checked="" type="checkbox"/> 8 hours <input type="checkbox"/> 24 hours <input type="checkbox"/> Other 02.12.2022 19:45:35

RWY-18/36 02.12.2022 06:30 1/1/1
 RWY-13/31 01.12.2022 16:01 NoWinterMaintenance

RUNWAY REMARKS

02.12.2022 07:45:34 - RSC 18 1/1/1 30 PCT 1/8IN SLUSH AND 70 PCT ICE, 10 PCT 1/8IN SLUSH AND 90 PCT ICE, 20 PCT 1/8IN SLUSH AND 70 PCT ICE. VALID DEC 02 0630 - DEC 02 1430. RSC 36 1/1/1 20 PCT 1/8IN SLUSH AND 70 PCT ICE, 10 PCT 1/8IN SLUSH AND 90 PCT ICE, 30 PCT 1/8IN SLUSH AND 70 PCT ICE. VALID DEC 02 0630 - DEC 02 1430. ADDN NON-GRF/TALPA INFO:

If transmission was not successful, any errors are shown instead of the RSC result.

NOTAM RCR Reports are also listed on the Runway Report lists and can be viewed etc:

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RwyCC Reports

RwyCC Reports NOTAM SNOWTAM Reports SnowTam Demo

Name	Report Version	Report Time	User	
Runway RWY-18/36	Nav Canada NOTAM	02.12.2022 07:30:32	Airport	Show Delete
Runway RWY-18/36	Nav Canada NOTAM	01.12.2022 17:36:22	Airport	Show Delete
Runway RWY-18/36	Measurement Drive RwyCC	01.12.2022 16:37:22	Airport	Show Delete
Runway RWY-18/36	Measurement Drive RwyCC	28.06.2022 08:35:45	Airport	Show Delete
Runway RWY-18/36	Measurement Drive RwyCC	13.06.2022 09:37:23	AirportDemo	Show Delete
Runway RWY-18/36	Measurement Drive RwyCC	11.02.2021 16:40:26	Airport	Show Delete
Runway RWY-13/31	Nav Canada NOTAM	01.12.2022 17:01:05	Airport	Show Delete

NOTAM Airport Reports are listed on the NOTAM tab:

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RwyCC Reports

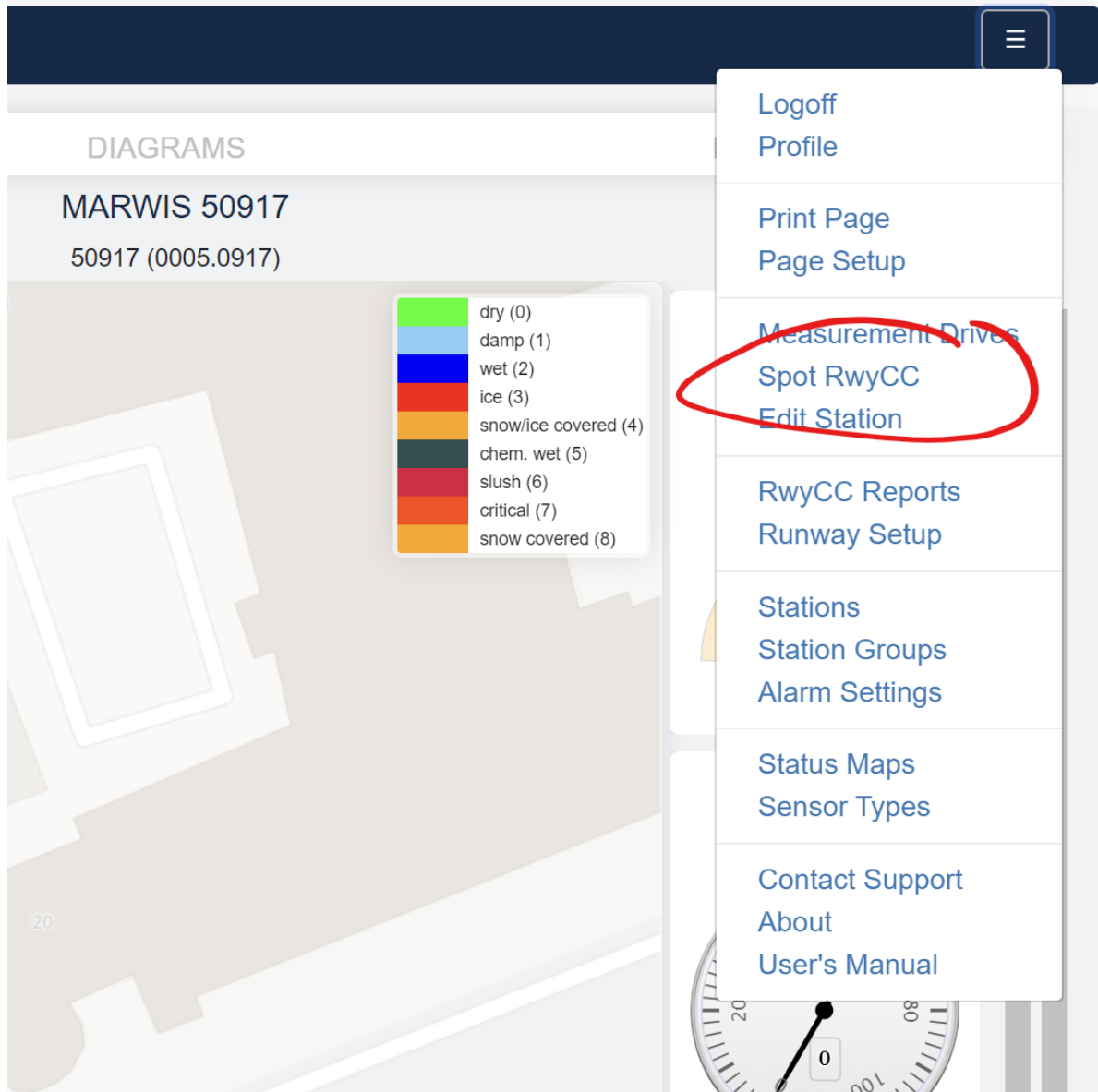
RwyCC Reports NOTAM SNOWTAM Reports SnowTam Demo

Name	Report Version	Report Time	User	
CYWG	Nav Canada NOTAM	01.12.2022 17:36:56	Airport	Show Delete
CYWG	Nav Canada NOTAM	02.12.2022 07:43:05	Airport	Show Delete

7 Creating a Spot RwyCC Report

NOTE: Spot RwyCC is not GRF compliant, and this option is now disabled per default (see "SNOWTAM Settings")

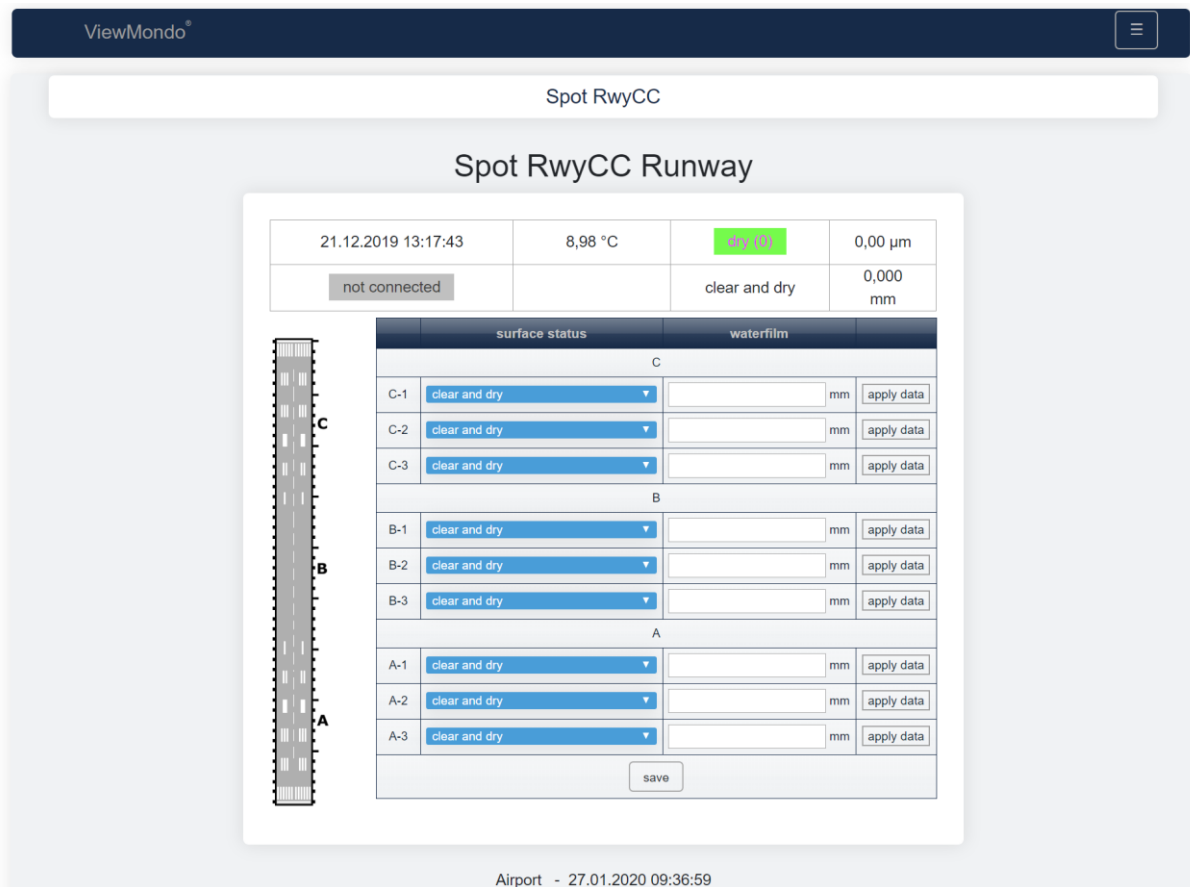
A "Spot RwyCC" workflow can be started from the context menu on a station page



The Marwis device that was shown/selected is assigned to the workflow, and the current measurement values from the device are shown on the top:

Note: when no runway has been configured for the user group yet, the user will be prompted to configure a (first) runway (see above).

When more than one runway is configured (see below) for the user group, the list of runways is displayed so the user can select the runway for which a report should be created.



If a Marwis is assigned to the workflow, the Marwis measurement data is shown above the RwyCC input form.

Following Marwis data is shown:

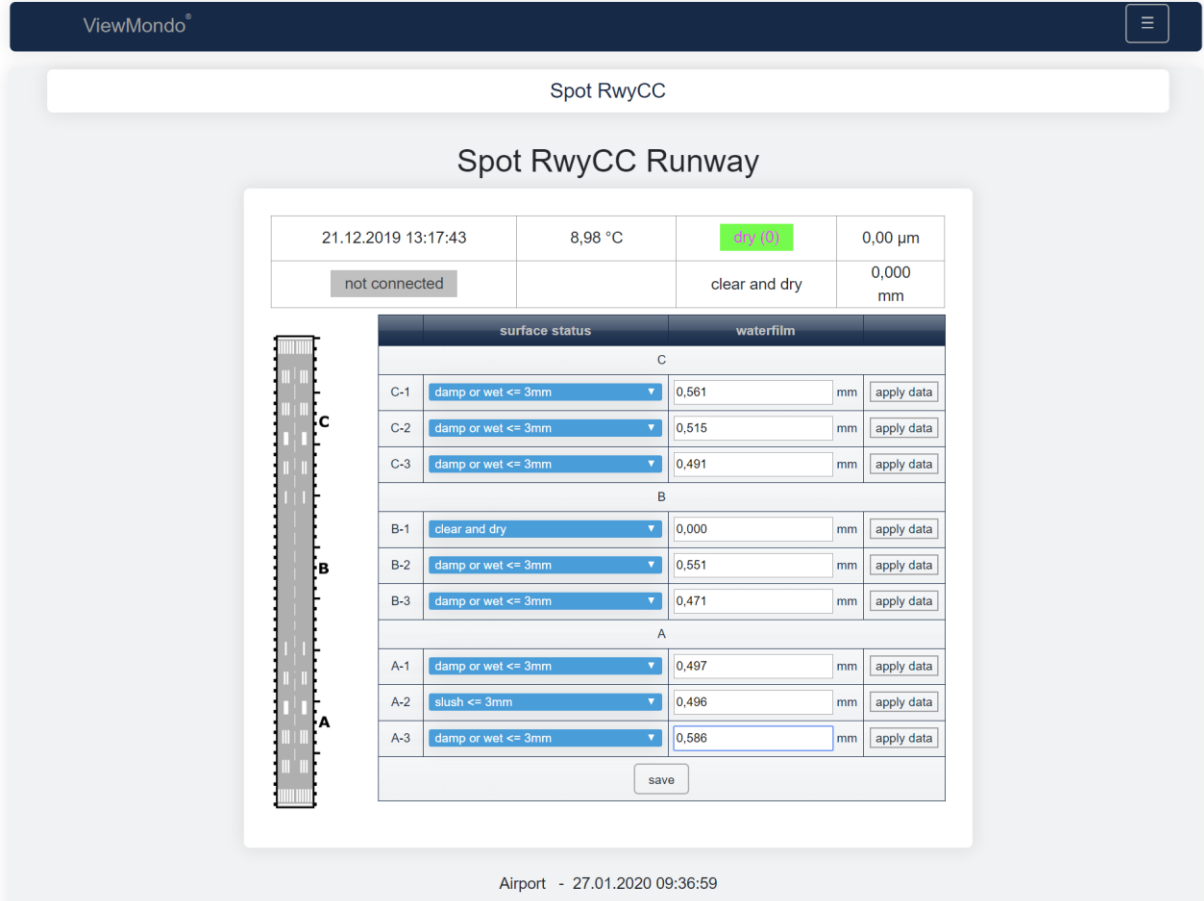
First row: date and time of measurement, the runway surface temperature, the road/runway condition and the waterfilm as measured by the Marwis device.

Second row: the connection status (OK / not connected) of the Marwis device, the RCAM Surface Status (derived from the Runway/Road Condition reported by Marwis) and the waterfilm in mm (as required by the RCAM report).

The procedure to create the RwyCC codes is as follows:

- Start the Marwis App on the tablet or smartphone, and check that everything is OK (connection to the Marwis device and connection to the ViewMondo server are established, and Marwis reports data).

- Push the Marwis App in the background (tap the "home" button)
- Start the browser and log on to ViewMondo
- If you have more than one Marwis device, select the appropriate Marwis from the menu
- Open the "Spot RwyCC" workflow from the context menu
- The connection status should show as "OK" (green), and the Date/Time of measurement should update every second ("real time" display of the Marwis data).
- Start your test drive. If you have reached a position where you would like to take a measurement, stop the car and tap on "apply data" on the right hand side of the appropriate row for the measurement. This will take the Marwis data and apply it to the respective measurement row.
- Check the data, especially the "surface status". The software tries to map the Marwis "road condition" to the GRF/RCAM "surface status", but since the Marwis device cannot detect all the possible values for the surface status, you might want to change this according to your observations of the runway
- Note that you can also edit the "waterfilm" value.
- When all (9) measurements have been taken, tap the "save" button



21.12.2019 13:17:43	8,98 °C	OK	0,00 µm
not connected		clear and dry	0,000 mm

	surface status	waterfilm	
C			
C-1	damp or wet <= 3mm	0,561 mm	apply data
C-2	damp or wet <= 3mm	0,515 mm	apply data
C-3	damp or wet <= 3mm	0,491 mm	apply data
B			
B-1	clear and dry	0,000 mm	apply data
B-2	damp or wet <= 3mm	0,551 mm	apply data
B-3	damp or wet <= 3mm	0,471 mm	apply data
A			
A-1	damp or wet <= 3mm	0,497 mm	apply data
A-2	slush <= 3mm	0,496 mm	apply data
A-3	damp or wet <= 3mm	0,586 mm	apply data

save

Airport - 27.01.2020 09:36:59

After tapping/clicking the "save" button, the next step is shown:

ViewMondo®

Spot RwyCC

Spot RwyCC Runway

A	B	C
surface status: <input type="text" value="slush <= 3mm"/>	surface status: <input type="text" value="damp or wet <= 3mm"/>	surface status: <input type="text" value="damp or wet <= 3mm"/>
waterfilm (avg): <input type="text" value="0,526"/> mm	waterfilm (avg): <input type="text" value="0,341"/> mm	waterfilm (avg): <input type="text" value="0,522"/> mm
surface RwyCC: <input type="text" value="5"/>	surface RwyCC: <input type="text" value="5"/>	surface RwyCC: <input type="text" value="5"/>
$\mu = \frac{h}{a}$ <input type="text" value=""/> friction coefficient	$\mu = \frac{h}{a}$ <input type="text" value=""/> friction coefficient	$\mu = \frac{h}{a}$ <input type="text" value=""/> friction coefficient
pilot report <input type="text" value="n/a"/>	pilot report <input type="text" value="n/a"/>	pilot report <input type="text" value="n/a"/>
<input type="button" value="save"/>		

Airport - 27.01.2020 09:36:59

For each of the 3 runway segments, the “worst” surface status as measured/observed in Step1 is shown, and the average water film is calculated from the 3 measurement samples taken for this runway segment.

The “surface RwyCC” is calculated from the “surface status” according to the following mapping table:

Surface Status	RwyCC
Clear and dry	6
Damp or wet <= 3mm	5
Dry or wet snow <= 3 mm	5
Rime	5
Compact snow T <= -15 °C	4
Compact snow T > -15 °C	3
Dry or wet snow > 3 mm	3
Dry or wet snow over compact snow	3
Wet and slippery	3
Wet or Slush > 3 mm	2
Ice	1
Wet ice/water over compact snow	0

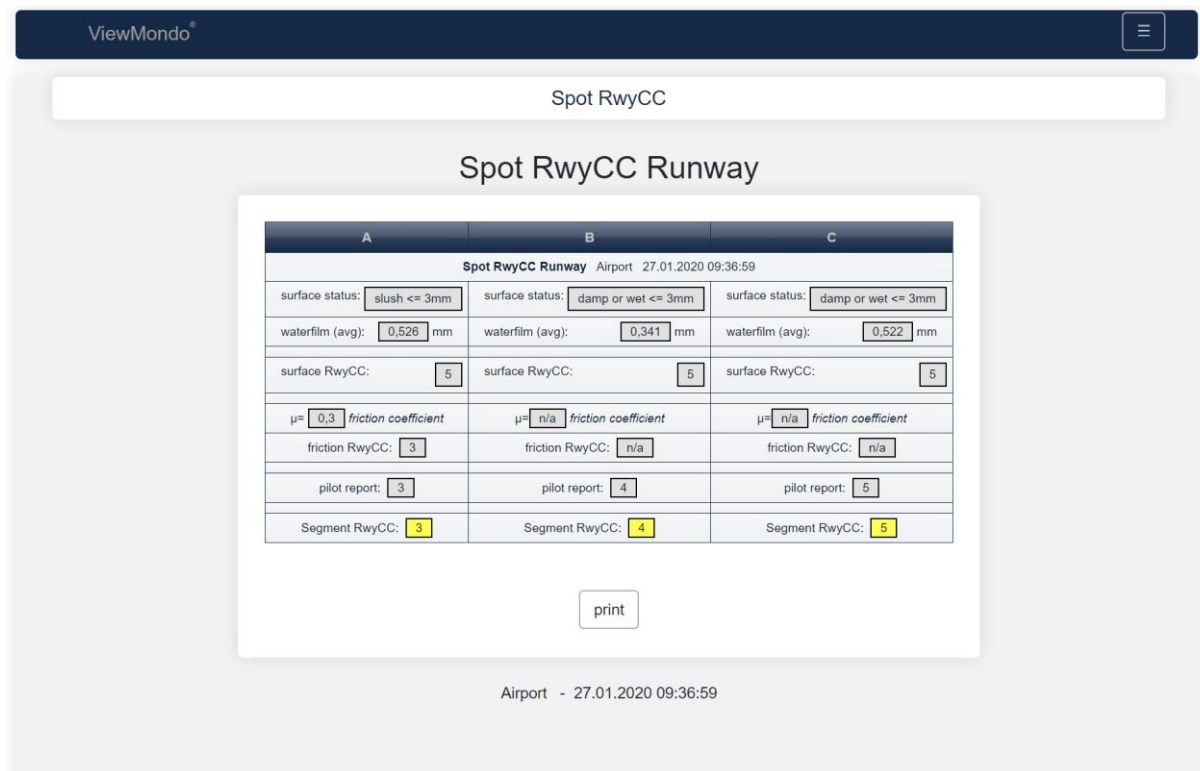
If applicable, measure the friction using the friction measurement device, and enter the data for the 3 sections.

If you have entered a friction value, the "friction RwyCC" is calculated according to the following mapping:

Grip	RwyCC
<= 0,2	0
<= 0,25	1
<= 0,29	2
<= 0,35	3
<= 0,39	4
< 0,7	5
>= 0,7	6

If available, enter the RwyCC code as reported by the pilot

Click/Tap OK to save the data.



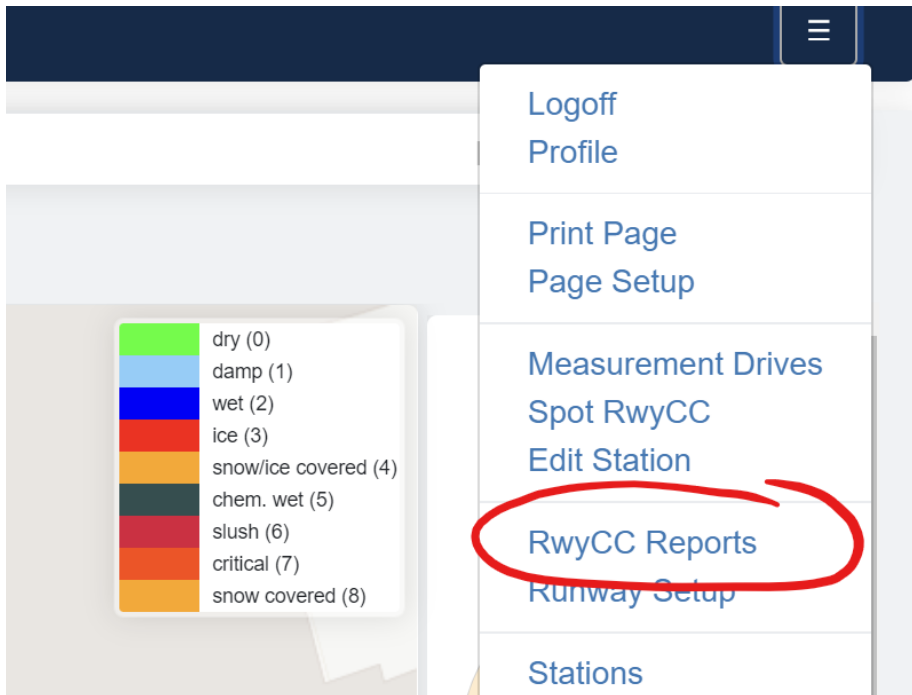
The screenshot shows the 'Spot RwyCC Runway' interface. At the top, there is a header 'ViewMondo' and a menu icon. Below it, the title 'Spot RwyCC Runway' is displayed. The main content area contains a table with three columns labeled A, B, and C, representing different runway segments. The table includes fields for surface status, waterfilm (avg), surface RwyCC, friction coefficient (μ), friction RwyCC, pilot report, and Segment RwyCC. The values for Segment RwyCC are highlighted in yellow: 3 for segment A, 4 for segment B, and 5 for segment C. A 'print' button is located below the table. At the bottom, the text 'Airport - 27.01.2020 09:36:59' is displayed.

A	B	C
Spot RwyCC Runway Airport 27.01.2020 09:36:59		
surface status: slush <= 3mm	surface status: damp or wet <= 3mm	surface status: damp or wet <= 3mm
waterfilm (avg): 0,526 mm	waterfilm (avg): 0,341 mm	waterfilm (avg): 0,522 mm
surface RwyCC: 5	surface RwyCC: 5	surface RwyCC: 5
μ= 0,3 friction coefficient	μ= n/a friction coefficient	μ= n/a friction coefficient
friction RwyCC: 3	friction RwyCC: n/a	friction RwyCC: n/a
pilot report: 3	pilot report: 4	pilot report: 5
Segment RwyCC: 3	Segment RwyCC: 4	Segment RwyCC: 5

The result values for the 3 segments are calculated and shown / can be printed and is saved to the database for further reference.

8 Viewing Reports

Select "RwyCC Reports" from the context menu.



This will show a list of all saved reports – for all versions (Runway Condition Code or Runway Assessment).

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RwyCC Reports

Name	Report Version	Report Time	User	
Spot RwyCC Runway	Spot RwyCC	27.01.2020 09:48:46	Airport	Show
Measurement Drive RwyCC Runway	Measurement Drive RwyCC	27.01.2020 09:50:34	Airport	Show

A report can be selected for viewing / printing by selecting "show".

If SNOWTAM reports have been created/saved, both.- RwyCC and SNOWTAM Reports are listed in separate tabs:

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RwyCC Reports

RwyCC Reports
SNOWTAM Reports Demo Report 1
SNOWTAM Reports Demo Report 2

Name	Report Version	Report Time	User	
Runway 09L	Measurement Drive RwyCC	10/21/2021 9:04:41 AM	AirportDemo	Show Delete

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RwyCC Reports

RwyCC Reports
SNOWTAM Reports Demo Report 1
SNOWTAM Reports Demo Report 2

Name	Report Version	Report Time	User	
Demo Report 1	SNOWTAM Report	9/22/2021 2:33:44 PM	AirportDemo	Show Delete
Demo Report 1	SNOWTAM Report	9/22/2021 2:32:22 PM	AirportDemo	Show Delete
Demo Report 1	SNOWTAM Report	9/14/2021 3:17:52 PM	AirportDemo	Show Delete

9 Change History

November 2016	P. Rau	Document created
October 2019	P. Rau	"Contamination Type" calculation Version 2
January 2020	P. Rau	Editorial changes / renaming
February 2020	P. Rau	New parameter "include Friction/M μ " New calculation based on percentual coverage (GRF/RCAM) instead of average/worst values
February 2020	P. Rau	Minor editorial changes
January 2021	P. Rau	Minor editorial changes
June 2021	P. Rau	SNOWTAM Airport Reports
October 2021	P. Rau	Additional params in Airport Settings (Contamination Type NR Threshold)
October 2021	P. Rau	Multiple "Airport Report" configurations; separate SNOWTAM parameters; Spot-RwyCC optional (default: disabled). pre-formulated situation awareness items
January 2022	P. Rau	Parameter "Waterfilm Depth WET/NR Threshold"
November 2022	P. Rau	NAV Canada NOTAM Reports