Hugoton Geomod4 Build

The following is a detailed recap of the building of the Hugoton geomodel version 4 (Geomod 4). Provided in this preliminary version are all the gory details.

Contents and Approximate slide numbers:

Structural Grid Models	1-18
Lithofacies Models	19-64
Porosity Models	65-73
Other Property Models	77-81
Workflow to make small model	82-108
Upscale 3X4 Hoobler sim mod	109-121

Prepare GM3

- 1. Six sub-models: Delete properties and fluid contacts
- Delete well headers in each folder by folder (very slow process) and import new well headers. Rename files with correct numbers (eg Cgrv_ONLY_las-295 becomes ...-295, Chase 218 – Chase. Did not delete the wells from the other folders. Takes too long. Some or all folders may need relinking.

🔁 Import W	ell Heads				other fo	Iders.	Del	ete fr
Import Create	Attribute 🔇	Column	Use	Comments	these fo	Idors		
head well well Import well deviation Import well logs	Name Unique well id X-coordinate Y-coordinate Kelly bushing (KB) Well symbol	1 2 3 4 7 8	K	The well name should be unique If not given, KB = 0 Do not use space !		nders.		
	Top depth (MD) Bottom depth (MD) Conversions Convert to projec Units of input data:	5 6 ct units XY: m	V	Z: m				
Headerinfo (fin Line 1: W Line 2: 1 Line 3: 1 Line 4: 3 Line 5: 1 Line 6: 1 Line 7: 1	st 30 lines): VELL_NAME 5067203380000 5075202010000 5139207330000 5129212450000 5189206570000 5055206160000	UWI/AP 1506721 1507521 3513921 151292 1518921 1505521	I SUF 03380 02010 07330 12450 06570 06160	RFX SURFY TOP_DE 1000 1228041.7 1000 1109267.1 1000 1049343.6 1000 1060986.9 1000 1216318.4 1000 1280556.1	PTH BOTTO 378031.5 444602.4 5764.2 2000 193206 2000 188065.1 412618 2000	M_DEPTH 2000 2000 3500 2775 2000 3200	DATUM 3150 3000 3237 3328 3200 2950	SYM 310C 3333 Key- Key- 3025 Key-
<				Ш		🗸 ок	🗶 Ca	ncel

Core 28 duplicates wells in

Well tops import

- Create 4 new tops folders (Framework, Chase and Cgrv tops, plus set for the 28 core wells)
- 2. Delete old well tops folders

🔁 Import Petr	el Well ⁻	Tops: 13	06 Chas	e LAS to	ps.TXT			?×
Column #	1	2	3	4	5	6	7	
Attribute	Х	Y	Z	Туре	Surface	Well	MD	
Attribute name	Х	Y	Z	Туре	Surface	Well	MD	
Attribute type	DOUBLE	DOUBLE	DOUBLE	VOID	KIDTAG	KIDTAG	DOUBLE	
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C Connect to we	elltrace	A 15	129215430	001 🖵				
Well name		1306 Cha	ase LAS to	ips.TXT	_	Undefi	ned value	-999
Negate Z-values Negate Time-val	lues 🔽	⚠	Sub-sea Z negati∨e!	values m	ustbe			
Header info (first)	30 lines):							
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<								>
		v 0	K For All	v	ок	🗶 Cano	cel	



Import new LAS files

😋 Match Filename and Well

Hint: Petrel has tried to match your files with a well. In the list below you can choose a different one.

File	File Name	Well Trace	
1	15055206650000	15055206650000	
2	15055202740000	15055202740000	
3	15055202900000	15055202900000	
4	15055202920000	15055202920000	
5	15055203660000	15055203660000	
6	15055204130000	15055204130000	
7	15055204310000	15055204310000	
8	15055204420000	15055204420000	
9	15055205380000	15055205380000	
10	15055205550000	15055205550000	
11	15055205760000	15055205760000	
12	15055205890000	15055205890000	
13	15055205980000	15055205980000	
14	15055206160000	15055206160000	
15	15055206220000	15055206220000	
16	15055206540000	15055206540000	
17	15055206600000	15055206600000	
-			
		🖌 ок 🛛 🗶	Cancel

NO MORE THAN 200 AT A TIME!!



Mash OK for all

Verify there are curves for all wells: Wells>Filter>

🖏 Settings for 'Wells'	×
Style Info Statistics Colors Analysis Filter Icons Operations Time Thickness Report Make logs	
General settings: C And C Or several filters together	
Apply filter to: Active windo	
Match name: Starts with: Match gase	
☐ <u>V</u> isible wells only	
☐ Has well <u>s</u> ymbols:	
A Unknown ☆ Gas Oil ◇ Dry ☆ Dry ▲ Unknown ☆ Dry ▲ Unknown ▲ Gas → Di → Di → Dry ▲ Gas → Constant → Co	
X Cancel Filter 🔶 Apply Filter	
🖌 Apply 🖌 OK 🗶 Cance	<u>" </u>

QC tops





Import surfaces



Build Horizons conditioned on well tops for facies wells



🖰 Make Horizons with 'Geomod4/Geomod4'

? 🗙

Well ties A1_Sh

Black – wells with LAS files White – "framework" wells





Map ties: Grid in color, horizons in blue







Make zones using Dave Hamilton's method (see Geomod 3 notes)

🔁 Ma	ake Zones wit	h 'Geomo	od4/Geomod	4'				? 🛛
Exec	cute		forme of in the sec	in the state of the state of the state				
	Stratigraphic In	iterval: 🚊	HRNGTN-V	ANF				
🙈 Z	ones Settin	gs 🛛 🐯 We	II Adjustment	OUncertainty				
.,8	·· ·· ··	NB 🖄	1 10					<u> </u>
Ŧ	🥙 HRNGTN		⇒	🧽 HRNGTN (Top	os-11_Chase_1306)			3
	Nan	ne	Color	Input Type	Input	Volume Correct	Status	
	Zone Hrringt	on	•	Conformable		🗹 Yes	<u>₩</u> New	
	Zone Krider		· · ·	Conformable	WRIDER (Tops-11_Chase_1306)	Ves (* New	
	ODELL		•	Contonnabio	DDELL (Tops-11 Chase 1306)	1. 100	X New	
	🙈 Zone Odell			Conformable		Ves 🛛	🔆 New	
	🤣 WINF		⇒	🤣 WINF (Tops-11	_Chase_1306)			0
Buil	d From:	Base horiz	on		Hint: Conformable means conformable to well tops			
Volu Buili	ume Correction: d along:	Proportion Vertical Th	al correction iickness (TVT)	• 3) • 3)	Horizons with Ø			
							🗸 Apply	V OK XCancel

All default settings, except well adjustment: uncheck "Adjust for missing well tops"

🖰 Mal	ke Zones with 'Geomod4'
Execu	ite
	The calculation will be performed in the selected stratigraphic interval only.
1.1	Stratigraphic Interval: 🛤 HRNGTN - WINF 🗨 🔺 💌
R	nes 🛛 📾 Settings 😻 Well Adjustment 🛛 🔯 Uncertainty
Wells	
(?)	C None
	C The cells penetrated by the wells only
	Across segments
2	🔿 Inside segment only 🛛 🔲 Use influence radius: 🛛 🚳 🖤
	Eesidual Surface by: Convergent
	Point Weighting: Inverse Distance Squared V
	Isochores with 0 thicness will not be corrected.
	🦳 Adjust for missing well tops and zone log if present 🥨
tm	Lise zone logs: Md inc: 10 Threshold: 25 0
	Use radius: 400 Tolerance: 5
vveli n	epon
4	Replace dip and azimuth on well tops
	🖌 Anniv 🖌 OK 🛛 🗶 Cancel

🔀 Make Zones with 'Geomod4/Geomod4'	? 🗙
Execute The oslouelion will be performed in the selected stratigraphic interval only. Stratigraphic interval: Stratigraphic interval: T	
Source Source: Source: Well correction After each zone is generated, so the next zone is build from a well corrected previous homizan. Image: Correction of the column correction as been done if any.	<u></u>
Contemple Table and the section of the section	
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	V OK XCancel

Rest of the Zones

J - 5 - 6 1	Interval 🙀 WINF nga (SeWell Adjusti N ^{II} 🍯 🕺	-PTPLY nort IVE/C	1			-
WINF			WINF (Tops-11_C	hase_) 305)		
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E Zone Towar	isa 🚺	-	Conformable	1	P Yes	* New
B/TWND				2 B/TWND (Tops-11_Chas	0_13	- Nipe
Zone B/Tow	anda 🛄	•	Conformable		P Yes	<. Nav
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C FTFLY	Base honzon					
FTRLY	Base honzon Proportional correc	fish	- 0 -	conformable to well tops		

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E Zo	ne Matlield		Conformable		F Yes	Viz. Négran	
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In In	ne Wreford		Conformable		P Yes	H NAW	
Q AL	,sH		AL_SH(To	ps-15_Cgrv_1248)			
Q AI,	SH	orizon	👄 🛠 Al_SH(To	pr:-15_Cgrv_1248)			-
Q AI, Bald From	SH Baset	Iorizon	et la state et la	ps=15_Cgn_1240) () Hint Conformable means conformable towal top			102

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	Zone At Lh		Conformable		F Yes	New New	
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Zones made

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Make Zanas	-
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- rocess Magram	
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Make isochores for all zones: Click on zone filter folder>output tab>insert a grid (from the input tab) >apply



Selected Zone Isochores

Evaluated all zone isochores and compared with Geomod 3. All look very similar and are satisfactory.

Krider



A1LM



B3LM



Proportional Layering

🔁 Layering w	ith 'Geomod4/Geom	od4'									? ×
Zones											
Process for making the layering for each zone											
Build along	ri Alang the Dillara			vienne mitte Otenen et		Ø					
<u>b</u> ulla aloni	g. Along the Pillars			rizons with Steep si	opes	3			3		<u> </u>
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🛤 Settings for	each Zone										
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Zone R/TM/		Ves	Proportional	Number of layers:			T Yes	E Yes	× New		
Zone ETRL		• IV Yes	Proportional	Number of layers:	14		E Yes	E Yes	≫ New		
Zone MATE		• IV Yes	Proportional	Number of layers:	5		T Yes	L Yes	<u>→ New</u>		
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🔀 Zone B1_LN	1	🕶 🔽 Yes	Proportional	Number of layers:	8		🗖 Yes	🗖 Yes	🔆 New		
🔁 Zone B2_SI	1	🕶 🔽 Yes	Proportional	Number of layers:	2		🗖 Yes	🗖 Yes	🔆 New		
Zone B2_LN	1	🕶 🔽 Yes	Proportional	Number of layers:	6		T Yes	🗖 Yes	🔆 New		
🛛 🞅 Zone B3_Sł	4	🕶 🔽 Yes	Proportional	Number of layers:	3		🗖 Yes	🗖 Yes	🔆 New		
💦 Zone B3_LN	1	🕶 🔽 Yes	Proportional	Number of layers:	3		🗖 Yes	🗖 Yes	🔆 New		
Zone B4_Sł	1	🕶 🔽 Yes	Proportional	Number of layers:	2		🗆 Yes	🗖 Yes	🔆 New		
Zone B4_LN	1	🕶 🔽 Yes	Proportional	Number of layers:	4		🗆 Yes	🗖 Yes	🔆 New		
💦 Zone B5_Sł	1	🕶 🔽 Yes	Proportional	Number of layers:	2		🗆 Yes	🗖 Yes	🔆 New		
Zone B5_LN	1	🕶 🔽 Yes	Proportional	Number of layers:	10		🗆 Yes	🗖 Yes	🔆 New		
Zone C_SH		• 🔽 Yes	Proportional	Number of layers:	6		T Yes	T Yes	🔆 New		
Zone C_LM		🕶 🔽 Yes	Proportional	Number of layers:	14		T Yes	T Yes	🔆 New		
,											
							 ✓ 	Apply	🖊 ОК	Xc	ancel
											/

Model Dimensions

Settings for 'Geomod4'	• 🔀 🗋
Info Statistics Operations Output	
Axis Min X 987000.00 13968 Y -50000.00 6357 Depth -1342.19 16	Max Delta 060.00 409860.00 409860.00 409860.00 409860.00 6857400.00 6857400.00 68574000000000000000000000000000000000000
Description Is depth converted ? Is upscaled ? Is stairstepped ? Number of iconized horizons: Number of iconized zones: Number of faults: Number of segments:	Value No No No 25 6 0 1
Number of properties: Cells (nl x nJ x nK) Nodes (nl x nJ x nK) Total number of 3D cells: Total number of 3D nodes: Number of real layers:	0 621 × 1039 × 169 622 × 1040 × 170 109042011 109969600 170 169
Total number of 2D cells: Total number of 2D nodes: Total number of defined 2D nodes:	645219 646880 646880
Average Xinc: Average Yinc: Average Zinc (along pillar) Rotation angle:	660.0000000 660.0000000 3.35575878 0.00000000
Number of top truncated pillars: Number of base truncated pillars: Number of unfaulted pillars: Number of faulted pillars:	0 0 646880 0
Number of unique horizon sequences: Geometry overview: Vertical pillars:	646880 100.00%
Listric pillars: Curved pillars: Curved pillars: Curved pillars: Curved pillars:	0.00% 0.00% st2 Reset
V Apr	ply 🖌 OK 🔀 Cancel F





Evaluate Layering

Check out the layering and gridding: Property Modeling >Geometric modeling> Select Zone Index and From all zones, to create a property to display





🖰 Geometrical Mo	deling with 'Geomod4/Geomod4'	?×
Settings		
* (Create new pro	perty	I
📕 🕥 <u>O</u> verwrite existi	ng property:	-
Settinge:	Regenerate name	
Select <u>M</u> ethod:	Zone Index	-
The property temp	plate will autmatically be updated or	
created if needed,	based on the grid.	
	 From main zones From all zones 	
a	 From all zones (in Hierarcy) 	
all 1	From all layers (K)	
	🖌 Apply	Cancel

Cgrv shales not displayed

Build six sub models

Make 6 copies of the full model.

Re-layer so that the "placeholder" zones are one cell thick.

Delete unwanted zones:

- 1. Make model active
- 2. Make zones in Structural modeling
- 3. Highlight zones to be deleted
- 4. Delete by mashing the delete icon and then "Apply." Clear memory.
- 5. Continue through the model. And SAVE.
- 6. Check out the layering by opening the Layering tool



🖰 Layering with 'Geomo	d4/HRNGTN-WINF'				<u>?</u> ×
Zones					
Process for making the layering	ig for each zone				
📓 Common Settings					
Build along: Along the	Pillars 💽 🦿	Horizons with S	teep slopes 🛛 🕐 🗌		
邱 🔲 Use minimum ce	ell thickness: 1	Include Proport	ional/Fractions, start F	rom: Top	- 2
🙈 Settings for each Zone	,			,	
🍇 Zone Division: 🔇	Reference Surface: 🛛 🖉	Restore Erodec	l: 🕜 🛛 Restore E	lase: 🕜	x x
Name Color Calculate	t Zone Divisio	n Ref	erence Restore R urface Eroded	estore Base Status	
🙈 Zone HR 🗖 🕶 🔽 Yes	Proportiona Number of layers:	9	T Yes T	Yes 🗸 Done	
Zone KRI 📃 🔻 🔽 Yes	Proportiona Number of layers:	12	TYes T	Yes 🗸 Done	
Zone OD 🔽 🗸 Ves	Proportiona Number of layers:	4	TYes T	Yes 🗸 Jone	
WINF-FT 📃 🕈 🔽 Yes	Proportiona Number of layers:	1	TYes T	Yes 🔆 New	
FTRLY-A 🔽 🗸 Yes	Proportiona Number of layers:	1	TYes T	Yes 🔆 New	
A1SH-B2 📃 🕶 Yes	Proportiona Number of layers:	1	TYes T	Yes 🔆 New	
B2LM-B4 🔲 🕶 Yes	Proportiona Number of layers:	1	T Yes T	Yes 🔆 New	
😹 B4LM-DS 📃 🕶 🏹 Yes	Proportiona Number of layers:	1	TYes T	Yes 🔆 New	
<u>/</u>				🖌 Apply	OK X Cancel

HRNGTN-B4LM



A1SH-DSH (Cgrv)



Block facies to wells

Note: Did not assign templates while importing wells so had to do this before starting the process.

Calculator f test_gr+AG3_GR1 I11_GM4XE=F11_ facies=F11_GM4X	or Glob: Mean GM4XE E	al well I	ogs 'Gl	obal we	ll logs'	si e C	ow History Result
From file: Select well log vari Mol DEPT Mark AG3_GR	oble:	-La Ra At	og setting esample lach new	gs existing to temple	ter T	• Fu • Ge	Eun Anctions cometry
M PHI_GM4		Se	ample ME rom Log	ENTER			
		Ľ	F11_G	M4XE	*	C	4
		C	Rad @	Deg (Grad		e-
Hyp Round	Sqrt	7	8	9	Or	And	2
Sin Abs	Int	4	5	6		1	3=
Cos Exp	Ln	110	2	3)	0
Tan Pow	Log	0	U			(



QC upscale facies at wells



Blocked facies at wells with A1LM horizon (red) Blue and green cells are from Chase only wells where Cgrv AS1Sh was not part of conditioning set of tops data. Consider not modeling these facies in the modeling process.



Blocked facies at wells with B1SH horizon (green) Blue and green cells are probably slop at the horizon. Consider not modeling these facies in the modeling process.

Upscale porosity to wells

Chase models

🖰 Scale up well logs with 'Geomod4/HRNGTN-WINF'	? 🗙
Scale up well logs	
* © Create new property Show result in Well Section	n 😫
Update existing property: F11_GM4XE [U]	-
l Overwrite All 🛛 🌔 Replace and Add N	ew 🕐
Select Vell logs Input C Welltop attributes from: C Point attributes	
Select Log:	-
Settings Weighted Seed Use Bias: Upscaled Log: F11_GM4XE [U] Upscaled From: F11_GM4XE [U] Scale up settings Average method: Arithmetic Treat log: As lines Use facies Weighting Method: Neighbour cell Use facies Weighting Minimum number of 3	ne All NLY_las-352 .Y_las-294 /k_noLAS_72 grv_LAS-954
•	
🖌 Apply 🖌 OK	Cancel

Turned off groups of wells without the curves over the interval being upscaled

Council Grove models

🞖 Scale up well logs with 'Geomod4/A1SH-B2LM'	
Scale up well logs	
* 💿 Create new property 🖪 Show result in Well Section	¢
C Update existing property: F11_GM4XE [U]	ᅱ
l Overwrite All 🕜 Replace and Add New 🥝	5
Select Input Imput Imput <t< th=""><th></th></t<>	
SelectLog: PHL_GM4	┓
Use Bias:	
Upscaled Log: F11_GM4XE [U] Vells:	<u> </u>
Upscaled From: F11_GM4XE	52
Scale up settings	72
Average method: Arithmetic ■ ▲ M Core_28 ■ ▲ M Core_28 ■ ▲ M Core_28	54
Treat log: As lines	
Method: Neighbour cell 💌 🔇	
Use facies Weighting Minimum number of 3 points in cell:	
🖌 Apply 🖌 OK 🗶 Can	cel

Upscaled vs. Log Phi



-<mark>70.2</mark>5 -0.2 -0.15 -0.1 -0.05 -0

Hrngtn- Krider & Winf-FtRly

Winf-FtRly

Facies data analysis

Go to Data Analysis

- 1. Unlock the zone
- 2. Punch "Fit Active/all curves to histogram" button
- 3. Smooth to satisfaction (2x)
- 4. Hit "Apply" to save







More facies analysis



More facies analysis





9: Cont SS

0.2

0.2

.....

Flobability Curves

0.4

0.4

4 Mdst 5 Wkst

E Fuin Del

Filibability Curves

0.4

0.Cont SS

5 Wkst 5 Edn Del

0.4

0.4

0.E

EYODADAM/ Cup/el

0.6

Adjust relative proportions F9 for Krider



Adjust relative proportions F9 for Winfield



Adjust relative proportions F10 for FtRiley





Reduced Mar ss by ~ 1/3

Zap lithofacies except F0,1,2 in A1SH

Determine zone index In Property calculator use equation to zap all F > 2(remember that the top dummy zone Hrngtn-Winf is zone 0)

🔁 Calculator for Prope	rties 'P	ropert	ies'								
Show											
F11_GM4XE=If(Zone	_Index	=3 And	F11_	_GM	4XE>2,U	, F11_0	iM4XE)				
From file:							, Run				
Select property variable:				Attac	ch new to te	emplate:					
Zone Index				L 🗹	🎽 General		•				
				Use filter:							
				Γ		eometry					
						EN	TER				
				0	Rad	С	<				
				ŏ	Grad	lf	<=				
Hyp Inv Bound Sqrt	7	8		9	Or	And	>				
Sin Abs Int	4	5		6	•	$\langle I \rangle$	>=				
Cos Exp Ln	1	2		3	-)	•				
Tan Pow Log	0	U			+	(=				

Zap Wreford artifacts (F012)



F012 artifacts caused by the way the structural horizon was constructed



Something squirly about this, made them golden?? Artifact from the way the horizons were made, putting a little of A1sh up in the wreford for Cgrv only wells

🔁 Calculato	r for	Prop	ertie	s '	Pro	per			
								Chow History Result	
F11_GM4XE=	If(Zone_	Index=4	4 And F	11_0	G M 4X	E<3.U .F	11_GM	4XE)	
From file:								Run	
Select property varial	ole:				Attack	n new to te	mplate:		
Zone Index						General		•	
Φ PHI_GM4 [U]					Use filter: Functions 			unctions	
					-			Geometry	
							EN	TER	
						Rad	С	<	
					Õ	Grad	lf	<=	
Hyp Round	Sqrt	7	8	_	9	Or	And	>	
Sin Abs	Int	4	5		6	•	1	>=	
Cos Exp	Ln	1	2		3	-)	<	
Tan Pow	Log	0	U			+	(=	



Rerun model with Geomod3 variogram parameters

- 1. Make copy of GM4XE
- 2. Insert Geomod3 variogram parameters through workflow
- 3. Re-run

Odell Stats

Ċ	Se	ttings i	for 'F	11_G/	۸4XE [U]'			?	×	
ſ	Style	Info Sta	tistics Dis	sc. Stat. H	listogram	Colors Op	perations \	Variogram			
		🔽 For	zone:	👹 Zone Ol	DELL (HRN	GTN-WINF)			┓	
I	Min, me	an, max and	std values	are for the	interval hei	ght.					
1	Numbers in brackets represent the corresponding number of cells.										
	. .										
	B Sta	atistics for the	entire pro	perty of the	zone:						
	Co	Name	%	N	Intervals	Min	Mean	Max	Std		
	0	Cont SS	2.66	68690	62994	0.1 (1)	4.8 (1.09)	23.8 (3)	2.991		
	1	Crs Silt	92.38	2384213	688296	0.1 (1)	16.4 (3	49.5 (4)	8.377		
	2	Mar Silt	4.67	120645	1148	0.1(1)	5.2 (1.12) 3 2 (1)	33.0 (4) 72 (1)	2.067		
	5	Wkst	0.04	1054	1054	3.6 (1)	4.3 (1)	5.3 (1)	0.412		
	7	Pkst-Grnst	0.02	604	604	1.5 (1)	4.6 (1)	7.8 (1)	1.206		
	9	MxIn Dol	0.03	696	696	0.5 (1)	2.9 (1)	6.1 (1)	1.005		
	10	Mar SS	0.15	3826	3727	0.8 (1)	3.5 (1.03)	6.7 (2)	1.343		
	😫 St	atistics for the	upscaled	cells of the	e zone:						
	_								0.1	_	
	Co	Name	1.07	N	Intervals	Min	Mean	Max	Std	_	
	1	Cre Silt	94.37	4890	1330	1.0(1)	4.9 (1.09)	15.0 (2)	6 362		
	2	Fn Silt & Sh	3.47	180	154	1.2 (1)	4.3 (1.17)	24.7 (4)	3.102		
	3	Mar Silt	0.06	3	3	1.5 (1)	1.8 (1)	2.5 (1)	0.4798		
	5	Wkst	0.02	1	1	4.0 (1)	4.0 (1)	4.0 (1)	0		
	7	Pkst-Grnst	0.04	2	2	4.0 (1)	5.9 (1)	7.8 (1)	1.887		
	9	Mxin Dol	0.08	4	4	0.7(1)	2.6 (1)	3.5 (1)	1.152		
		War 55	0.10	э	5	1.5(1)	2.0(1)	3.0(1)	0.7969		
	C 🖹	opy to output	sheet 🖡	List 1	List2	Reset	63				
-						-		/ ок I	XCan	el	
						_					

Style Info Statistics Disc. Stat Histogram Colors Operations Variogram Image: Statistics For zone: Image: Zone ODELL (HRNGTN-WINF) Image: Statistics Image: Statis <th>😇 Se</th> <th>ttings fo</th> <th>or 'Co</th> <th>py of</th> <th>F11_0</th> <th>GM4XI</th> <th>E [U]'</th> <th></th> <th>?</th> <th>×</th>	😇 Se	ttings fo	or 'Co	py of	F11_0	GM4XI	E [U]'		?	×
Image: Weight of the state is and state of the interval height. Numbers in brackets represent the corresponding number of cells. Image: Statistics for the entire property of the zone: Code Name % N Intervals Min Mean Max Std 0 Cont SS 4.05 104575 80135 0.1(1) 63(1.3) 42.7(4) 4.908 1 Crs Sit 90.54 23366 695386 0.1(1) 15.9(3	Style	Info Statist	ics Disc.	Stat. His	stogram C	olors Op	erations V	'ariogram		
Min. mean, max and std values are for the interval height. Numbers in brackets represent the corresponding number of cells. Image: Statistics for the entire property of the zone: Code Name % N Intervals Min Mean Max Std 0 Cont SS 4.05 104575 80135 0.1(1) 6.3(1.3) 42.7(4) 4.908 1 Crs Silt 90.54 23366 695386 0.1(1) 15.9(3 49.5(4) 8.56 2 Fn Silt Sh 4.98 128409 99496 0.3(1) 5.6(1.29) 32.0(4) 4.207 3 Mar Sitt 0.03 662 662 0.1(1) 2.1(1) 6.2(1) 1.308 5 Wkst 0.04 919 919 3.7(1) 4.6(1.02) 7.9(2) 1.352 9 Mkin Dol 0.06 1528 1286 0.5(1) 3.8(1.19) 12.0(3) 1.951 10 Mar SS 0.30 7723 6172 0.1(1) 4.0(2) 7.9(2) 1.352 10 Mar SS 0.30 773 6172 0.	**	🔽 For zo	ne: 🗎	Zone ODI	ELL (HRNG	TN-WINF)			•
Image: Statistics for the entire property of the zone: Code Name % N Intervals Min Mean Max Statistics 0 Cont SS 4.05 104575 80135 0.1(1) 6.3(1.3) 42.7(4) 4.908 1 Crs Sit 90.54 23366. 695386 0.1(1) 15.9(3495.4) 8.56 2 Fn Sitt & Sh 4.98 128409 99496 0.3(1) 5.6(1.29) 32.0(4) 4.207 3 Mar Sitt 0.03 662 60.1(1) 1.1(1) 6.2(1) 1.308 5 Wkst 0.04 919 919 3.7(1) 4.6(1) 5.7(1) 0.434 7 Pkst-Gmst 0.02 450 440 3.3(1) 4.6(1.02) 7.9(2) 1.352 9 Mkin Dol 0.06 1528 1.286 0.5(1) 3.8(1.7) 1.0(3) 1.951 10 Mar SS 0.30 7723 6172 0.1(1) 2.6(1.25) 14.0(3) 1.951 9 Math Mar Sit 0.63 <t< td=""><td>Min, me</td><td>an, max and sto</td><td>d values a</td><td>re for the in</td><td>nterval heig</td><td>ht. ber of cell</td><td>e</td><td></td><td></td><td></td></t<>	Min, me	an, max and sto	d values a	re for the in	nterval heig	ht. ber of cell	e			
Image: Statistics for the entire property of the zone: Code Name % N Intervals Min Mean Max Std 0 Cont SS 4.05 104575 80135 0.1 (1) 6.3 (1.3) 42.7 (4) 4.908 1 Crs Silt 90.54 23366 695386 0.1 (1) 15.9 (3 495 (4) 8.56 2 Fn Silt & Sh 4.98 128409 99496 0.3 (1) 5.6 (12.9) 32.0 (4) 4.207 3 Mar Silt 0.03 662 662 0.1 (1) 2.1 (1) 6.2 (1) 1.308 5 Wkst 0.04 919 919 3.7 (1) 4.6 (10.2) 7.9 (2) 1.352 9 Mkin Dol 0.06 1528 1286 0.6 (1) 3.8 (1.9) 1.9 (3) 1.951 ## Statistics for the upscaled cells of the zone: Code Name % N Intervals Min Mean Max Std 10 Const S 1.87 97 89 1.0 (1) 4.9 (1.9) 1.6 (2) 2.77	Number	5 III DIACKELS IE	presentu	e conesp	onung nun	iber of cen	ь.			
Statistics for the entire property of the zone: Ocde Name % N Intervals Min Mean Max Std 0 Cont SS 4.05 104575 80135 0.1(1) 6.3(1.3) 427(4) 4.908 1 C res Sit 90.54 23366 695366 0.1(1) 15.9(3 495(4) 8.56 2 Fn Silt & Sh 4.98 128409 99496 0.3(1) 5.6(1.29) 32.0(4) 4.207 3 Mar Silt 0.03 662 662 0.1(1) 2.1(1) 62.1(1) 1.308 5 Wkst 0.04 919 919 3.7(1) 4.6(1.02) 7.9(2) 1.352 9 Mxin Dol 0.06 1528 1286 0.5(1) 3.8(1.19) 12.0(3) 1.951 10 Mar SS 0.30 7723 6172 0.1(1) 4.6(1.02) 7.9(2) 2.774 1 Crs Sitt 94.37 4890 1330 15(1) 15.0(2) 2.774 1 C rs Sitt 94.37 4890										
Code Name % N Intervals Min Mean Max Std 0 Cont SS 4.05 104575 80135 0.1(1) 6.3(1.3) 42.7(4) 4.908 1 Crs Silt 90.54 23366 695386 0.1(1) 15.9(3 49.5(4) 8.56 2 Fn Silt Sh 4.98 128409 99496 0.3(1) 5.6(1.29) 32.0(4) 4.207 3 Mar Silt 0.03 662 662 0.1(1) 2.1(1) 6.2(1) 1.308 5 Wkst 0.04 919 919 3.7(1) 4.6(1) 5.7(1) 0.44 7 Pkst-Grnst 0.02 450 440 3.3(1) 4.6(1) 5.7(1) 0.431 9 Mxin Dol 0.06 1528 1286 0.5(1) 3.8(1.19) 12.0(3) 1.951 10 Mar SS 0.30 7723 6172 0.1(1) 4.6(1.25) 14.0(3) 1.951 10 Cont SS 1.87 9 1.0(1) 4.9(1.99) 15.0(2)	🌐 Sta	tistics for the er	itire prope	rty of the z	one:					
Code Name No Nume Nume Nume Num N	Code	Nome	9 /	N	Intervola	Min	Moon	Mox	Sta	_
1 Crs Silt 90.54 23366 695386 0.1 (1) 15.9 (3 49.5 (4) 8.56 2 Fn Silt Sh 4.98 128409 99496 0.3 (1) 56 (1.29) 32.0 (4) 4.207 3 Mar Sitt 0.03 662 662 0.1 (1) 1.10 6.2 (1) 1.308 5 Wkst 0.04 919 919 3.7 (1) 4.6 (1) 5.7 (1) 0.434 7 Pkst-Gmst 0.02 450 440 3.3 (1) 4.6 (1.02) 7.9 (2) 1.352 9 Mkin Dol 0.02 450 440 3.3 (1) 4.6 (1.02) 7.9 (2) 1.352 10 Mar SS 0.30 7723 6172 0.1 (1) 2.6 (1.25) 14.0 (3) 1.951 Statistics for the upscaled cells of the zone: Code Name % N Intervals Min Mean Max Std 0 0 Cont SS 1.87 97 89 1.0 (1) 4.9 (1.0 (2) 2.774 1 Crs Silt<		ContSS	4.05	104575	80135	0.1 (1)	6.3 (1.3)	42.7 (4)	4.908	-
2 Fn Sink Sh 4.98 128409 99496 0.3 (1) 56 (1.29) 32 0 (4) 4.207 3 Mar Sit 0.03 662 662 0.1 (1) 2.1 (1) 6.2 (1) 1.308 5 Wkst 0.04 919 919 3.7 (1) 4.6 (1) 5.7 (1) 0.434 7 Pkst-Grnst 0.02 450 440 3.3 (1) 4.6 (1) 2.7 (1) 1.352 9 Mxin Dol 0.06 1528 1286 0.5 (1) 3.8 (1.19) 12.0 (3) 1.953 10 Mar SS 0.30 7723 6172 0.1 (1) 2.6 (1.25) 14.0 (3) 1.951 Watin Dol 0.6 10 Mar SS 0.30 7723 6172 0.1 (1) 4.6 (1.25) 14.0 (3) 1.951 Watin Dol 0 Cont SS 1.87 97 89 1.0 (1) 4.9 (1.09) 15.0 (2) 2.774 1 Crost S 1.87 97 89 1.0 (1) 4.0 (1) 4.0 (1) 0.2 (2) 2.774	1	Crs Silt	90.54	23366	695386	0.1 (1)	15.9 (3	49.5 (4)	8.56	
S Mar Sit 0.03 662 662 0.1(1) 2.1(1) 6.2(1) 1.306 S Wkst 0.04 919 919 3.7(1) 4.6(1.02) 7.9(2) 1.352 9 Mxin Dol 0.06 1528 1286 0.5(1) 3.8(1.19) 12.0(3) 1.953 10 Mar SS 0.30 7723 6172 0.1(1) 2.6(1.25) 14.0(3) 1.951 Statistics for the upscaled cells of the zone: Code Name % N Intervals Min Mean Max Std 0 Cont SS 1.87 97 89 1.0(1) 4.9(1.09) 15.0(2) 2.774 1 C rs Sit 94.37 4890 1330 1.5(1) 15.6(2) 2.774 1 C rs Sit 94.37 4890 1330 1.5(1) 1.9(4) 6.362 2 Fn Sitk Sh 3.47 180 154 12(1) 4.3(1.17) 24.7(4) 3.102 3 Mar Sith 0.06 3 3 1.5(1) <td< td=""><td>2</td><td>Fn Silt & Sh</td><td>4.98</td><td>128409</td><td>99496</td><td>0.3 (1)</td><td>5.6 (1.29)</td><td>32.0 (4)</td><td>4.207</td><td></td></td<>	2	Fn Silt & Sh	4.98	128409	99496	0.3 (1)	5.6 (1.29)	32.0 (4)	4.207	
7 Pkst-Grnst 0.02 450 440 3.3 (1) 4.6 (1.02) 7.9 (2) 1.352 9 MxIn Dol 0.06 1528 1286 0.5 (1) 3.8 (1.19) 12.0 (3) 1.953 10 Mar SS 0.30 7723 6172 0.1 (1) 2.6 (1.25) 14.0 (3) 1.951 Statistics for the upscaled cells of the zone: Code Name % N Intervals Min Mean Max Std 0 Cont SS 1.87 97 89 1.0 (1) 4.9 (1.09) 15.0 (2) 2.774 1 Crs Silt 94.37 4890 1330 15 (1) 15.5 (3 41.9 (4) 6.362 2 Fn Silt& Sh 3.47 180 154 12 (1) 4.3 (1.17) 24.7 (4) 3.102 3 Mar Silt 0.06 3 3 1.5 (1) 1.8 (1) 2.5 (1) 0.4798 5 Wkst 0.02 1 1 4.0 (1) 4.0 (1) 4.0 (1) 1.8 (7) 9 Mxh	5	WarSiit	0.03	919	919	37(1)	2.1(1)	57(1)	0.434	
9 Mxin Dol 0.06 1528 1286 0.5(1) 3.8(1.19) 12.0(3) 1.953 10 Mar SS 0.30 7723 6172 0.1(1) 2.6(1.25) 14.0(3) 1.951 Image: Statistics for the upscaled cells of the zone: Image: Statistics for the upscaled cells of the zone: Image: Statistics for the upscaled cells of the zone: Code Name % N Intervals Min Mean Max Std 0 Cont SS 1.87 97 89 1.0(1) 4.9(1.09) 15.0(2) 2.774 1 Crs Silt 94.37 4890 1330 15(1) 15.5 (3 41.9 (4) 6.362 2 Fn Silt & Sh 3.47 180 154 1.2 (1) 4.3 (1.27) 24.7 (4) 3.102 3 Mar Silt 0.02 1 1 4.0 (1) 4.0 (1) 0.0 (1) 5 5 Wkst 0.02 1 1 4.0 (1) 5.0 (1) 3.8 (1) 0.7989 5 Wkst 0.02 1 1 4.0 (1) 2.8 (1) <t< td=""><td>7</td><td>Pkst-Grnst</td><td>0.02</td><td>450</td><td>440</td><td>3.3 (1)</td><td>4.6 (1.02)</td><td>7.9 (2)</td><td>1.352</td><td></td></t<>	7	Pkst-Grnst	0.02	450	440	3.3 (1)	4.6 (1.02)	7.9 (2)	1.352	
10 Mar SS 0.30 7/23 61/2 0.1 (1) 2.6 (1.25) 14.0 (3) 1.951 30 Statistics for the upscaled cells of the zone: Code Name % N Intervals Min Mean Max Std 0 Cont SS 1.87 97 89 1.0 (1) 4.9 (1.09) 15.0 (2) 2.774 1 Crs Silt 94.37 4890 1330 1.5 (1) 15.5 (3 41.9 (4) 6.362 2 Fn Silt & Sh 3.47 180 154 1.2 (1) 4.3 (1.7) 24.7 (4) 3.102 3 Mar Silt 0.06 3 3 15 (1) 1.8 (1) 2.5 (1) 0.4798 5 Wkst 0.02 1 1 4.0 (1) 4.0 (1) 4.0 (1) 0.1 (1) 7.7 (1) 2.6 (1) 3.5 (1) 1.152 10 Mar SS 0.10 5 5 1.5 (1) 2.8 (1) 3.8 (1) 0.7989	9	MxIn Dol	0.06	1528	1286	0.5 (1)	3.8 (1.19)	12.0 (3)	1.953	
Image: Statistics for the upscaled cells of the zone: Code Name % N Intervals Min Mean Max Std 0 Cont SS 1.87 97 89 1.0 (1) 4.9 (1.09) 15.0 (2) 2.774 1 Crs Silt 94.37 4890 1330 1.5 (1) 15.5 (3 41.9 (4) 6.362 2 Fn Silt & Sh 3.47 180 154 1.2 (1) 4.3 (1.17) 24.7 (4) 3.102 3 Mar Silt 0.06 3 3 15 (1) 1.8 (1) 2.5 (1) 0.4798 5 Wkst 0.02 1 1 4.0 (1) 4.0 (1) 4.0 (1) 0 7 Pkst-Grmst 0.04 2 2 4.0 (1) 5 (1) 1.152 10 Mar SS 0.10 5 5 1.5 (1) 2.8 (1) 3.8 (1) 0.7989	10	MarSS	0.30	7723	6172	0.1 (1)	2.6 (1.25)	14.0 (3)	1.951	
Image: Product state in the state in the image in the image. Image in the image. Image in the image. Image in the image. Image in the										
Bits Statistics for the upscaled cells of the zone: Code Name % N Intervals Min Mean Max Std 0 Cont SS 1.87 97 89 1.0(1) 4.9(1.09) 15.0(2) 2.774 1 Crs Silt 94.37 4890 1330 1.5(1) 15.5 (3 41.9 (4) 6.362 2 Fn Silt & Sh 3.47 180 154 1.2 (1) 4.3(1.7) 24.7 (4) 3.102 3 Mar Silt 0.06 3 3 1.5 (1) 1.8 (1) 2.6 (1) 0.4798 5 Wkst 0.02 1 1 4.0 (1) 4.0 (1) 0 7 Pkst-Grmst 0.04 2 2 4.0 (1) 5.9 (1) 7.8 (1) 1.887 9 Mxdn Dol 0.08 4 4 0.7 (1) 2.6 (1) 3.5 (1) 1.152 10 Mar SS 0.10 5 5 1.5 (1) 2.8 (1) 3.8 (1) 0.7989										
Code Name % N Intervals Min Mean Max Std 1 Cont SS 1.87 97 89 1.0 (1) 4.9 (1.09) 15.0 (2) 2.774 1 Crs Silt 94.37 4890 1330 1.5 (1) 15.5 (3 41.9 (4) 6.362 2 Fn Silt&Sh 3.47 180 154 1.2 (1) 4.3 (1.17) 24.7 (4) 3.102 3 Mar Silt 0.06 3 3 15 (1) 1.8 (1) 2.5 (1) 0.4798 5 Wkst 0.02 1 1 4.0 (1) 4.0 (1) 0 7 Pkst-Grmst 0.04 2 2 4.0 (1) 5.9 (1) 7.8 (1) 1.887 9 Mxdn Dol 0.08 4 4 0.7 (1) 2.6 (1) 3.5 (1) 1.152 10 Mar SS 0.10 5 5 1.5 (1) 2.8 (1) 3.8 (1) 0.7989	👭 Sta	atistics for the up	oscaled co	ells of the a	zone:					
OCONTSS 1.87 97 89 1.0(1) 4.9(1.09) 15.0(2) 2.774 1 Crs Silt 94.37 4890 1330 15.1(1) 15.5 (3 41.9 (4) 6.362 2 Fn Silt&Sh 3.47 180 154 1.2 (1) 4.3 (1.07) 24.7 (4) 3.102 3 Mar Silt 0.06 3 3 15.1(1) 15.5 (3 41.9 (4) 6.362 2 Fn Silt&Sh 3.47 180 154 1.2 (1) 4.3 (1.17) 24.7 (4) 3.102 3 Mar Silt 0.06 3 3 15.1(1) 1.8 (1) 2.5 (1) 0.4798 5 Wkst 0.02 1 1 4.0 (1) 4.0 (1) 4.0 (1) 0 7 Pkst-Granst 0.04 2 2 4.0 (1) 5.9 (1) 7.8 (1) 1.887 9 Mdn Dol 0.08 4 4 0.7 (1) 2.6 (1) 3.5 (1) 1.152 10 Mar SS 0.10 5 5 1.5 (1) 2.8 (1) 3.8 (1) 0.7989	Code	Namo	9/	N	ntonvale	Min	Moon	Max	Std	_
1 Crs Silt 94.37 4890 1330 1.5 (1) 15.5 (3 41.9 (4) 6.362 2 Fn Silt & Sh 3.47 180 154 1.2 (1) 4.3 (1.17) 24.7 (4) 3.102 3 Mar Silt 0.06 3 3 1.5 (1) 1.8 (1) 2.5 (1) 0.4798 5 Wkst 0.02 1 1 4.0 (1) 4.0 (1) 4.0 (1) 0 7 Pkst-Grmst 0.04 2 2 4.0 (1) 5.9 (1) 7.8 (1) 1.887 9 Mdn Dol 0.08 4 4 0.7 (1) 2.6 (1) 3.5 (1) 1.152 10 Mar SS 0.10 5 5 1.5 (1) 2.8 (1) 3.8 (1) 0.7989		Cont SS	1.87	97	89	1.0 (1)	4.9 (1.09)	15.0 (2)	2.774	-
2 Fn Sitk Sh 3.47 180 154 1.2 (1) 4.3 (1.17) 2.47 (4) 3.102 3 Mar Sitt 0.06 3 3 1.5 (1) 1.8 (1) 2.5 (1) 0.4798 5 Wkst 0.02 1 1 4.0 (1) 4.0 (1) 4.0 (1) 0 7 Pkst-Grnst 0.04 2 2 4.0 (1) 5.9 (1) 7.8 (1) 1.887 9 Mxdn Dol 0.08 4 4 0.7 (1) 2.6 (1) 3.5 (1) 1.152 10 Mar SS 0.10 5 5 1.5 (1) 2.8 (1) 3.8 (1) 0.7989	1	Crs Silt	94.37	4890	1330	1.5 (1)	15.5 (3	41.9 (4)	6.362	
3 Mar Silt 0.06 3 3 1.5(1) 1.8(1) 2.5(1) 0.4798 5 Wkst 0.02 1 1 4.0(1) 4.0(1) 4.0(1) 0 7 Pkst-Grmst 0.04 2 2 4.0(1) 5.9(1) 7.8(1) 1.887 9 MxIn Doi 0.08 4 4 0.7(1) 2.6(1) 3.5(1) 1.152 10 Mar SS 0.10 5 5 1.5(1) 2.8(1) 3.8(1) 0.7989	2	Fn Silt & Sh	3.47	180	154	1.2 (1)	4.3 (1.17)	24.7 (4)	3.102	
3 West Grust 0.02 1 1	3	Mar Silt Wkot	0.06	3	3	1.5 (1)	1.8 (1)	2.5 (1) ().4798	
9 Modin Dol 0.08 4 4 0.7 (1) 2.6 (1) 3.5 (1) 1.152 10 Mar SS 0.10 5 5 1.5 (1) 2.8 (1) 3.8 (1) 0.7989 Image: Signal Computer Structure Image: Signal Computer	7	Pkst-Grnst	0.02	2	2	4.0 (1)	5.9(1)	7.8 (1)	1.887	
□ 10 Mar SS 0.10 5 5 1.5 (1) 2.8 (1) 3.8 (1) 0.7989	9	MxIn Dol	0.08	4	4	0.7 (1)	2.6 (1)	3.5 (1)	1.152	
⊠ Copy to output sheet 🔽 List 1 🔽 List 2 🔽 Reset 🔒	10	Mar SS	0.10	5	5	1.5 (1)	2.8 (1)	3.8 (1) ().7989	
If Copy to output sheet ▼ List 1 ▼ List 2 ■ Reset □										
🗟 Copy to output sheet 🔽 List 1 🔽 List 2 🔲 Reset ы										
📴 Copy to output sheet 🔽 List 1 🔽 List 2 🔲 Reset ы										
	🗟 Co	py to output sh	eet 🔽	List 1 🔽	List 2	Reset	66			
🖉 Apply 🗸 OK 🗶 Cancel							/ Apply	🖌 ок	X Can	

Model facies stats Zone ODELL resulting facies fractions:	
Cont SS: 0.00 % Fine Silt & Sh: 97.62 % Crs Silt: 0.91 % Mar Silt: 1.19 % Mdst: 0.00 % Wkst: 0.00 % FxIn Dol: 0.00 % FxIn Dol: 0.00 % Grnst: 0.00 %	
Mar SS: 0.28 %	

Workflows

B Workflow Editor for "HN	IGTON-WINF"
Name: HNGTON-WINF Descri	ption:
Author: SCM Train4 9/ 2/	2005 💌
Available functions: ⑦	
Utility Operations Processes	•
Arithmetic Operations	⇒ ^
General Functions	
Angle Functions	
Replace Where	With 3D-Grid 🚽 🔐 HRNGTN-WINI With Copy: (
Surface-Surface Operations	Wake Horizons
Stochastic Functions	
🗉 🧰 Common Operations	Geometrical Modeling
Points Operations	Scale up well logs 🗮 F11 GM4XE [U]
Polygons Operations	× 😫 Scale up well logs Φ PHI_GM4 [U]
Surface Operations	P2
Get result of Calculations	🚆 🎽 Make Contacts 🚄 Contact Set
E Convert Points/Polygons/Surfaces	2
Model Extraction	Facies Modeling = F11_GM4XE [U]
Property Operations	Petrophysical Modeling X Object is NOT selected
Make Map from Property	×
Seismic Operations	
Warning level: 💿 🛕	Options: ② [값 최 🕃 Auto generate workflow
E Run Fest Statu	s: 🗾 🖌 Apply 🖌 Ok 🗙 Close



- 1. Open workflow for the model
- 2. Insert the appropriate 3D model. This automatically adds the associated make Horizons, make zones and layering workflow. Check these out to make sure they are okay.
- 3. Rearrange like to template
- 4. Set up the geometric model point to zone index
- 5. Make contact in process window>structural model
- 6. Set facies modeling parameters by double clicking the "Facies Modeling" to open the dialog box.
- Turn off all except what you want run. Apply. Save in the Petrel tools tab. Apply > test >Run. Be patient. It takes 1 to 1-½ hours to run a model.

Facies Modeling Parameters



10. Apply and Save in the main Petrel window

Saving tips





To save without running hit in the modeling box and then apply in the workflows and save button in Petrel to save. Do Not Hit Close without first saving.
Herington

GM4 Gf-Variograms (27/23-11, h=16)



Herington k=2 (2nd layer down-of 9) GM4 GM3-Variograms (30/25-11, h=7)



Herington k=2 (2nd layer down-of 9)

GM3GM3-Variograms (30/25-11, h=7)



Herington k=2 (2nd layer down-of 9)

Cont silt is now marine silt (more appropriate)

Herington Stats

🔁 Se	ttings fo	or 'Co	py of	F11_0	GM4X	E [U]'		?	
Style	Info Statist	ics Disc.	Stat. H	istogram C	olors	perations \	/ariogram		
**	🔽 For zo	ne: 🙈	Zone HR	NGTN (HR	NGTN-W	INF)			-
Min, me	an, max and sto	, I values a	re for the	interval heig	iht.				
Number	rs in brackets re	present th	e corres	ponding nun	nber of ce	lls.			
🔠 Sta	tistics for the en	tire prope	rty of the	zone:					
						-			
Code	Name	%	N	Intervals	Mir	Mean	Max	Std	
	Crs Silt	1.12	64809	42636	0.4 (1	2.6 (1.52)	16.8 (7)	1./3	
3	MarSilt	35.94	20869	998066	0.0 (1	54(2.09)	61.9 (9)	5 198	
4	Mdst	9.72	564568	371476	0.0 (1	4.1 (1.52)	42.9 (9)	3.491	
5	Wkst	7.10	412105	297367	0.0 (1	3.7 (1.39)	46.4 (9)	2.872	
6	FxIn Dol	0.76	44161	30147	0.7 (1	3.7 (1.46)	27.6 (8)	2.59	
7	Pkst-Grnst	4.61	267804	175050	0.1 (1	4.8 (1.53)	39.8 (7)	3.829	
9	MxIn Dol	2.10	122118	73544	0.0 (1) 5.7 (1.66)	46.0 (8)	4.692	
10	MarSS	38.49	22350	913896	0.1 (1) 5.8 (2.45)	56.4 (9)	4.841	
11 CH	tistics for the un		lle of the	7000					
** Sta	ausues for the up	iscaled ci	ens or the	zone.					
Code	Name	%	N	Intervals	Min	Mean	Max	Std	
1	Crs Silt	0.87	100	72	0.4 (1)	2.8 (1.39)	16.8 (5)	2.085	
2	Fn Silt & Sh	0.07	8	6	0.8 (1)	2.1 (1.33)	3.1 (2)	0.8744	
3	Mar Silt	35.03	4041	1740	0.9 (1)	6.6 (2.32)	34.3 (9)	5.056	
4	Mdst	8.82	1017	5/8	1.2 (1)	6.1 (1.76)	26.9 (8)	4.854	
5	WKSt Evin Dol	5.88	6/ð 86	451	1.2 (1)	4.7 (1.5)	21.6 (6)	2.966	
	Pkst-Grnst	4 40	508	354	1.0(1)	46(144)	14.6 (5)	2 671	
9	MxIn Dol	1.40	162	82	2.0 (1)	6.8 (1.98)	31.7 (6)	5.525	
10	Mar SS	42.79	4937	1558	0.4 (1)	8.1 (3.17)	32.0 (9)	5.663	
,									
BY Co	unu to output ob	not 🗔	List1 🗖	C Lint 2	Deast	B.			
⊡ Co	py to output she	set iv	LIST I		Reset				
						🖌 Apply	🖌 ок	X Ca	nce

🖥 Se	ettings f	or 'F	11_GA	14XE [U]'			? 🔀
Style	Info Stati	stics Dis	c. Stat. H	istogram	Colors Op	perations \	/ariogram	
#	✓ For:	zone:	Zone HF	RNGTN (HF	RNGTN-WI	NF)		-
Min, me	ean, max and s	td values	are for the	interval hei	ght.			
Numbe	ers in brackets	represent	the corres	ponding nu	mber of cel	lls.		
-								
🖽 St	atistics for the e	entire prop	perty of the	zone:				
Со	Name	%	N	Intervals	Min	Mean	Max	Std
1	Crs Silt	0.98	57050	49459	0.4 (1)	2.3 (1.15)	16.8 (5)	1.452
2	Fn Silt & Sh	0.15	8483	7513	0.6 (1)	2.6 (1.13)	13.8 (5)	2.134
	Mdet	35.17	2042239	3951/9	0.0 (1)	4.4 (1.71)	51.7 (9)	3.739
5	Wkst	5.92	343517	290834	0.0(1)	31(118)	216(7)	1 926
6	FxIn Dol	0.50	29023	26109	0.6 (1)	3.2 (1.11)	13.7 (4)	1.744
7	Pkst-Grnst	4.39	255191	216585	0.0 (1)	3.5 (1.18)	31.7 (6)	2.381
9	MxIn Dol	1.76	102462	80397	0.0 (1)	4.0 (1.27)	36.1 (7)	2.615
<mark> </mark> 10	Mar SS	42.49	2467302	1183515	0.0 (1)	5.0 (2.08)	55.4 (9)	4.295
🕴 Si	atistics for the	upscaled	cells of the	zone:				
Co	Name	%	N	Intervals	Min	Mean	Max	Std
1	Crs Silt	0.87	100	72	04(1)	28(139)	16.8 (5)	2 085
2	Fn Silt & Sh	0.07	8	6	0.8 (1)	2.1 (1.33)	3.1 (2)	0.8744
3	Mar Silt	35.03	4041	1740	0.9 (1)	6.6 (2.32)	34.3 (9)	5.056
4	Mdst	8.82	1017	578	1.2 (1)	6.1 (1.76)	26.9 (8)	4.854
5	Wkst	5.88	678	451	1.2 (1)	4.7 (1.5)	21.6 (6)	2.966
6	FxIn Dol	0.75	86	68	1.8 (1)	4.4 (1.26)	12.9 (4)	1.959
7	Pkst-Grnst	4.40	508	354	1.2 (1)	4.6 (1.44)	14.6 (5)	2.671
9	Mar SS	1.40	162	1559	2.0(1)	0.8 (1.98)	31.7(6)	5.525
010	IVIAI SS	42.79	4937	1008	0.4 (1)	0.1 (3.17)	32.0 (9)	0.000
🖹 C	opy to output s	heet 🔽	List 1	List2	Reset	6		
					~	Apply	🖊 ок	X Cancel

Geomod3 Model facies stats Zone HRNGTN resulting facies fractions:
Cont SS: 0.00 %
Fine Silt & Sh: 16.30 %
Crs Silt: 0.06 %
Mar Silt: 29.97 %
Mdst: 3.13 %
Wkst: 5.20 %
FxIn Dol: 0.00 %
Pkst: 1.97 %
Grnst: 0.00 %
CxIn Dol: 5.14 %
Mar SS: 38.22 %

Krider with varying parameters

GM4 Gf-Variograms (27/23-11, h=16)

GM4 GM3-Variograms (30/25-11, h=7)

GM3GM3-Variograms (30/25-11, h=7)



Krider k=14 (5th layer down-of 12) Krider k=14 (5th layer down-of 12) Krider k=14 (5th layer down-of 12)

Modified Krider (the one used)



🗿 Se	ttings fo	or 'F1	1_GA	۸4XE [U]'			?
Style	Info Statis	tics Dis	c. Stat. H	listogram	Colors	Operations	Variogra	am
**	🔽 For z	one: 闻	Zone KF	RIDER (HR	NGTN-V	VINF)		-
Min, me	an, max and st	d values	are for the	interval he	ight.			
Number	s in brackets in	epresent	the corres	ponding nu	inder of	cens.		
🚺 Sta	tistics for the e	ntire prop	erty of the	zone:				
Code	Name	%	N	Intervals	Min	Mean	Max	Std
	Crs Silt	0.00	4 52	35	0.7(1)	2.1 (1.55)	5.0 (2)	1 102
2	Fn Silt & Sh	0.00	11	6	1.0 (1)	1.6 (1.83)	2.0 (6)	0.4104
3	Mar Silt	11.60	893833	568380	0.0 (1)	3.7 (1.57)	46.3 (12)	3.598
4	Mdst	2.55	196653	152772	0.0 (1)	3.4 (1.29)	33.8 (7)	3.144
5	Wkst	23.62	1819558	1068976	0.0 (1)	4.1 (1.7)	73.1 (12)	4.462
6	FxIn Dol	0.79	60956	43317	0.0 (1)	4.0 (1.41)	29.7 (6)	3.47
7	Pkst-Grnst	20.74	1597899	840864	0.0 (1)	4.9 (1.9)	82.1 (12)	5.616
9	Mar SS	35.90 4.79	2765390	220892	0.0(1)	7.4 (2.45)	84.7 (12) 56 7 (12)	8.961 4.305
	Mar 00	4.75	500055	220032	0.0 (1)	3.0 (1.07)	30.7 (12)	4.505
😫 Sta	atistics for the u	pscaled	cells of the	e zone:				
Cada	Name	0/	NI	Intervala	Min	Maan	Man	
Code	ContSS	0.03		Intervais	1 7 (1)	2 1 (1 23)	2 0 (2)	0.5097
	Crs Silt	0.03	52	35	0.7(1)	22(149)	5.0 (2)	1 102
2	En Silt & Sh	0.07	11	6	1.0 (1)	1.6 (1.83)	2.0 (6)	0.4104
3	Mar Silt	8.10	1260	794	0.3 (1)	3.7 (1.59)	21.3 (12)	2.472
4	Mdst	1.85	288	232	0.5 (1)	3.2 (1.24)	8.5 (4)	1.555
5	Wkst	15.66	2435	1305	0.5 (1)	4.4 (1.87)	31.9 (11)	3.171
6	FxIn Dol	0.68	105	75	1.3 (1)	4.4 (1.4)	14.5 (4)	2.903
7	Pkst-Grnst	16.01	2489	1052	0.7(1)	6.1 (2.37)	45.0 (12)	5.417
9	Mxin Dol	54.09	8411	1/75	0.8(1)	14.4 (4	81.9 (12)	13.58
	Mar 55	3.19	496	249	0.3(1)	3.7 (1.99)	13.8 (9)	2.753
🕑 Co	py to output sh	ieet: 🔽	List 1	List 2	Rese	et 🕒		
					v	Apply	🖊 ок	X Cance

Krider L5 With very long ranges (50-42), looks much better

Krider

GM4 Gf-Variograms (27/23-11, h=16)

💍 Set	tings f	or 'F11_0	GM4XE [n].							?>
Style	Info	Statistics	Disc. Sta	t. Histi	ogram (Colors C	pera	tions \	/ariogram	1	
(#¥)		For zone:	尾 Zor	e KRID	ER (HRN	IGTN-WI	NF)				-
Min, me	, an, max	and std va	dues are fo	ir the int	erval heig	ght.	ĺ.				
Numbe	ers in bra	ckets repre	esent the c	orrespo	nding nur	mber of ce	ells.				
_											
🌐 St	atistics fo	or the entire	property of	of the zo	ne:						
Co	Name Cont S ^o		% 0.03	1591	1310	Min 1.3 (1)	21	vlean	Max 8 3 (3)	1 344	
1	Crs Silt	2	0.64	49	29	0.0 (1)	3.7	(1.21) ? (1.7)	48.5 (9)	5.54	
2	Fn Silt &	&Sh	0.15	і 11 • ол	7119	0.0 (1)	2.0) (1.6)) (1.6)	35.7 (7)	3.998	
4	Mdst	L	2.23	17	13	0.0 (1)	3.61	(1.29)	33.8 (8)	3.329	
5	Wkst Evin De	а	18.51	14	87 42	0.0 (1)	3.91	(1.63)	58.7 (12)	3.91	
7	Pkst-Gr	nst	17.78	13	43 71	0.0 (1)	4.9	(1.97) (1.91)	87.9 (12)	5.78	
9	MxIn Do	ol .	43.85	i 33	11	0.0 (1)	8.6	(2.95)	89.6 (12)	10.62	
	Maraa		5.03	i 30	22	0.0(1)	3.41	(1.74)	57.3 (12)	4.085	
a à											
PP St	tatistics fo	or the upsc	aled cells	of the zo	one:						
-			. [[
Co	Name Cont St		0.03		Interval	s I 3 17	Vin (1)	21(13	an N 3) 30	4ax 1(2) 0 P	Std
1	Crs Silt	,	0.33	52	3	5 0.7	(1)	2.2 (1.4	9) 5.2	(6) 1	.102
2	Fn Silt &	&Sh '	0.07	11 1260	79	6 1.0 4 0.3	(1)	1.6 (1.8	3) 2.0 9) 2137	1(6) 0.4 12) 2	4104 472
4	Mdst	L	1.85	288	23	2 0.5	(1)	3.2 (1.2	3) 21.3 (4) 8.5	(4) 1	.555
5	Wkst Evin De	J	15.66	2435	130	5 0.5 5 1.2	(1)	4.4 (1.8	7) 31.9 (4) 14 5	(11) 3 (4) 2	.171
7	Pkst-Gr	nst	16.01	2489	105	5 1.3 2 0.7	(1)	6.1 (2.3	4) 14.5 7) 45.0 ((4) 2 (12) 5	.903
9	MxIn Do	əl	54.09	3411	177	5 0.8	(1)	14.4 (4	81.9 (0) 12 0	12) 1	3.58
	Maraa		3.19	496	24	9 0.3	0	3.7 (1.9	9) 13.0	(9) 2	.753
1											
🖹 C	opy to o	utput sheet:	🔽 List	1 🔽 I	List 2	Reset	Q	3			

Geomod3 Zone KRIDER resulting facies fractions:

Cont SS: 0.00 % Fine Silt & Sh: 0.60 % Crs Silt: 0.16 % Mar Silt: 1.17 % Mdst: 8.97 % Wkst: 27.96 % Fxln Dol: 0.41 % Pkst: 28.89 % Grnst: 0.00 % Cxln Dol: 26.62 % Mar SS: 5.22 %



Krider Stats

GM4 Gf-Variograms (27/23-11, h=16)

🔁 Se	ttings fo	or 'Co	py of	F11_0	GM4X	E [U]'		?	×
Style	Info Statist	ics Disc.	Stat. His	stogram C	olors Op	perations \	Variogram		
#	🔽 For zo	ne: 🗎	Zone KRI	DER (HRN	IGTN-WIN	F)			-
Min, me	an, max and sto	l values a	re for the i	nterval heig	jht.				_
Number	s in brackets re	present th	ie corresp	onding nun	nber of ce	lls.			
_									
\rm Sta	tistics for the er	itire prope	rty of the z	one:					
Code	Nome	0/	N	Intervale	Min	Moon	Mov	Ctd	
	ContSS	0.02	1591	1310	1.3 (1)	2.1 (1.21)	8.3 (3)	1.344	
1	Crs Silt	0.64	49550	29163	0.0 (1)	3.7 (1.7)	48.5 (9)	5.54	
2	Fn Silt & Sh	0.15	11355	7119	0.0 (1)	2.0 (1.6)	35.7 (7)	3.998	
3	Mar Silt	10.96	844578	527640	0.0 (1)	4.0 (1.6)	81.4 (12)	4.285	
4	Mdst	2.23	1/2036	975100	0.0 (1)	3.6 (1.29)	33.8 (8)	3.329	
6	Exin Dol	0.82	63365	43145	0.0(1)	42(147)	274(6)	3 634	
7	Pkst-Grnst	17.78	13695	716406	0.0 (1)	4.9 (1.91)	87.9 (12)	5.78	
9	Mxin Dol	43.85	33776	1143135	0.0 (1)	8.6 (2.95)	89.6 (12)	10.62	
10	Mar SS	5.03	387143	222504	0.0 (1)	3.4 (1.74)	57.3 (12)	4.085	
44									
📲 Sta	atistics for the up	oscaled ce	ells of the :	zone:					
Code	Name	%	N	Intervals	Min	Mean	Max	Std	
	Cont SS	0.03	4	3	1.7 (1)	2.1 (1.33)	3.0 (2)	0.5987	
1	Crs Silt	0.33	52	35	0.7 (1)	2.2 (1.49)	5.2 (6)	1.102	
2	Fn Silt & Sh	0.07	11	6	1.0 (1)	1.6 (1.83)	2.0 (6)	0.4104	
3	Mar Silt	8.10	1260	794	0.3 (1)	3.7 (1.59)	21.3 (12)	2.472	
4	Wast	1.65	288	232	0.5(1)	3.2 (1.24) 4.4 (1.87)	0.5 (4) 31 0 (11)	1.555	
6	Exin Dol	0.68	105	75	13(1)	44(14)	145(4)	2 903	
7	Pkst-Grnst	16.01	2489	1052	0.7 (1)	6.1 (2.37)	45.0 (12)	5.417	
9	MxIn Dol	54.09	8411	1775	0.8 (1)	14.4 (4	81.9 (12)	13.58	
10	Mar SS	3.19	496	249	0.3 (1)	3.7 (1.99)	13.8 (9)	2.753	
,									
📴 Co	py to output sh	eet 🔽	List 1 🔽	List 2	Reset	6			
								1	
						Apply	🖌 ок	X Ca	ncel

GM4 GM3-Variograms (30/25-11, h=7)

tyle	Info Stati	stics Dis	sc. Stat.	listogram	Colors O	perations	Variogram	
**	For:	zone: 🖡	👹 Zone KF	RIDER (HRI	NGTN-WIN	IF)		-
in, me	ean, max and s	std values	are for the	interval hei	ght.			
umbe	ers in brackets	represent	t the corres	ponding nu	mber of ce	lls.		
St	atistics for the e	entire pror	perty of the	zone:				
Co	Name	%	N	Intervals	Min	Mean	Max	Std
0	Cont SS	0.07	5720	4748	0.1 (1)	1.0 (1.2)	6.0 (4)	0.8166
1	Crs Silt	0.56	42973	33870	0.0 (1)	1.5 (1.27)	15.7 (8)	1.548
2	Fn Silt & Sh	0.12	9245	/254	0.0 (1)	0.8 (1.27)	6.9 (7)	0.8603
3	Mar Silt	9.92	/64405	5/4302	0.0(1)	3.2 (1.33)	37.8 (12)	2.807
5	Wket	16.84	1297410	932118	0.0(1)	3.1 (1.17)	20.0 (4) 48.8 (12)	2.004
6	Exin Dol	0.62	48017	42842	0.0(1)	3.2 (1.33)	24 3 (4)	2.52
7	Pkst-Grnst	16.21	1248953	869167	0.0 (1)	3.8 (1.44)	52.5 (12)	3.762
9	Mxin Dol	49.56	3817492	1450744	0.0 (1)	7.7 (2.63)	90.7 (12)	9.906
10	Mar SS	4.19	323060	258309	0.0 (1)	2.4 (1.25)	32.8 (12)	2.238
	atistics for the	upscalad	colls of the	7000				
. 0.	dublics for the	apsealed	cens or an	20110.				
Co	Name	%	N	Intervals	Min	Mean	Max	Std
0	Cont SS	0.03	4	3	1.7 (1)	2.1 (1.33)	3.0 (2)	0.5987
1	Crs Silt	0.33	52	35	0.7 (1)	2.2 (1.49)	5.2 (6)	1.102
2	Fn Silt & Sh	0.07	11	6	1.0 (1)	1.6 (1.83)	2.0 (6)	0.4104
3	Mar Silt	8.10	1260	794	0.3 (1)	3.7 (1.59)	21.3 (12)	2.472
4	Mdst	1.85	288	232	0.5 (1)	3.2 (1.24)	8.5 (4)	1.555
6	Exin Dol	0.62	2435	1305	0.5(1)	4.4 (1.87)	31.9 (11) 14 5 (4)	2 003
7	Pkst-Grnst	16.01	2489	1052	07(1)	61(237)	450(12)	5 417
9	Mxin Dol	54.09	8411	1775	0.8 (1)	14.4 (4.	81.9 (12)	13.58
10	Mar SS	3.19	496	249	0.3 (1)	3.7 (1.99)	13.8 (9)	2.753
						Lal		
7 C	opy to output s	heet: 🖪	List1	 List2 	Reset			

Geomod3 Model facies stats Zone KRIDER resulting facies fractions:
Cont SS: 0.00 % Fine Silt & Sh: 0.00 % Crs Silt: 0.00 % Mar Silt: 1.19 % Mdst: 8.61 % Wkst: 27.96 % Fxln Dol: 0.40 % Pkst: 29.33 % Grnst: 0.00 % Cxln Dol: 27.31 %

Mar SS: 5.19 %





Style		F F 1 1	_GM4XE			na l Varias	vom	
						is valiog	Jani	_
Ain, me: Number	an, max and std 's in brackets rep	values are for present the c	or the interval	l height. g number o	f cells.			
		ine property	or the zone.					
Code	Name	0.05	2019	Intervals 3214	Min	Mean 3.0.(1)	10.4.(2)	1 178
1	Crs Silt	0.05	52437	39336	0.8 (1)	3.6 (1.33)	24.5 (6)	2.123
2	Fn Silt & Sh	0.27	19399	13838	1.0 (1)	3.7 (1.4)	20.0 (7)	2.105
3	Mar Silt	10.92	775192	529798	0.7 (1)	4.2 (1.46)	48.4 (11)	3.045
4	Mdst	0.49	35117	30585	0.8 (1)	3.2 (1.15)	19.8 (4)	1.905
5	Wkst	10.01	710690	515431	0.7 (1)	3.9 (1.38)	46.6 (9)	2.618
2	Exin Doi Dist-Great	1.40	99187 1429641	70648	0.8(1)	4.3 (1.4)	31.7(7)	3.159
9	MxIn Dol	20.14	2297925	1015994	0.7(1) 0.7(1)	6.9 (2.26)	674(11)	6.811
10	MarSS	23.59	1674603	878035	0.7 (1)	5.4 (1.91)	53.1 (11)	4.641
Code 0	Name Cont SS Crs Silt	% 0.04 0.67	N I 6 95	ntervals 5 78	Min 2.0 (1) 1.5 (1) 3	Mean 3.2 (1.2) 3.3 (1.22)	Max 4.6 (2) 6.8 (3)	Std 0.8301 1.178
Code 0 1 2 3 4 5 6 7 7 9 10	Name Cont SS Crs Sitt Fn Silt & Sh Mar Silt Wkst Fxln Dol Pkst-Grnst Mxln Dol Mar SS	% 0.04 0.67 0.16 10.84 0.58 10.05 0.92 20.39 36.85 19.50	N 11 6 95 23 1547 83 1434 132 2910 5260 2784	ntervals 5 78 19 1055 76 882 99 1221 1465 1217	Min 2.0 (1) 1.5 (1) 3.3 (1) 0.9 (1) 4 1.5 (1) 0.9 (1) 4 1.3 (1) 1.3 (1) 1.3 (1) 1.3 (1) 1.3 (1) 1.3 (1) 1.3 (1) 1.3 (1) 1.0 (1)	Mean 3.2 (1.2) 3.3 (1.22) 3.6 (1.21) 4.1 (1.47) 3.3 (1.09) 4.5 (1.63) 4.5 (1.63) 7.2 (2.38) 1.5 (3 5.9 (2.29)	Max 4.6 (2) 6.8 (3) 11.3 (4) 15.3 (6) 6.9 (2) 20.3 (9) 21.4 (5) 34.4 (11) 51.7 (11) 40.1 (9)	Std 0.8301 1.178 2.074 2.203 1.092 2.67 3.019 5.709 10.05 5.213
Code 0 1 2 3 4 5 6 7 9 10 Co	Name Cont SS Crs Silt Fn Silt & Sh Mdst Wkst Fxln Dol Pkst-Grnst Mxln Dol Mar SS	% 0.04 0.67 0.16 10.84 10.05 0.92 20.39 36.85 19.50 et v List	N II 6 95 23 1547 83 1434 132 2910 5260 2784 t1 ✓ List2	ntervals 5 78 1055 76 882 99 1221 1465 1217	Min 2.0 (1) 1.5 (1) 1.3 (1) 0.9 (1) 1.5 (1) 0.9 (1) 1.3 (1) 0.9 (1) 1.3 (1) 1.3 (1) 1.3 (1) 1.3 (1) 1.3 (1) 1.3 (1) 1.3 (1) 1.3 (1) 1.0 (1) et	Mean 3.2 (1.2) 3.3 (1.22) 3.6 (1.21) 4.1 (1.47) 3.3 (1.09) 4.5 (1.63) 4.1 (1.33) 7.2 (2.38) 1.5 (3 5.9 (2.29)	Max 4.6 (2) 6.8 (3) 11.3 (4) 15.3 (6) 6.9 (2) 20.3 (9) 21.4 (5) 34.4 (11) 34.4 (11) 40.1 (9)	Std 0.8301 1.178 2.074 2.03 1.092 2.67 3.019 5.709 10.05 5.213
Code 0 1 2 3 4 5 6 7 9 10 2 2 3 4 5 6 7 9 10 2 6 7 9 10 2 6 7 9 10 10 10 10 10 10 10 10 10 10	Name Cont SS Crs Silt Fn Silt & Sh Mar Silt Mdst Wkst FxIn Dol Pkst-Grnst MxIn Dol Mar SS	% 0.04 0.67 0.16 10.84 0.58 10.05 0.92 20.39 36.85 19.50 et ▼ List	N In 6 95 95 23 1547 83 1434 132 2910 5260 2784 2784 t1 Image: List 2	ntervals 5 78 19 1055 76 882 99 1221 1465 1217	Min 2.0 (1) 1.5 (1) 3 1.3 (1) 3 0.9 (1) 4 1.5 (1) 3 0.9 (1) 4 1.3 (1) 7 1.3 (1) 1 1.0 (1) 6 et 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5	Mean 3.2 (1.2) 3.3 (1.22) 3.6 (1.21) 4.1 (1.47) 4.1 (1.47) 5.1 (1.33) 7.2 (2.38) 1.5 (3 5.9 (2.29) Apply	Max 4.6 (2) 6.8 (3) 11.3 (4) 15.3 (6) 6.9 (2) 20.3 (9) 21.4 (5) 34.4 (11) 51.7 (11) 40.1 (9) OK	Std 0.8301 1.178 2.074 3.019 2.67 3.019 5.709 10.05 5.213
Code 0 1 2 3 4 5 6 7 9 10 10 10 10 10 10 10 10 10 10	Name Cont SS Crs Silt Fn Silt & Sh Mar Silt Mdst Wkst FxIn Dol Pkst-Grnst Mdn Dol Mar SS mpy to output she NINF resul	% 0.04 0.67 0.16 10.84 0.58 10.05 0.92 20.39 36.85 19.50 et ▼ List	N h 6 95 23 1547 1547 83 1434 132 2910 5260 2784 2784 t1 ✓ List2 ees stats ies fraction	ntervals 5 78 19 1055 76 882 99 91221 1465 1217 2 8 Res	Min 2.0 (1) 1.5 (1) 3 1.3 (1) 3 0.9 (1) 4 1.5 (1) 3 0.9 (1) 4 1.3 (1) 1 1.3 (1) 1 1.3 (1) 1 1.0 (1) 6	Mean 3.2 (1.2) 3.3 (1.22) 3.6 (1.21) 3.6 (1.21) 3.1 (1.47) 3.1 (1.9) 4.5 (1.63) 7.2 (2.38) 1.5 (3 3.9 (2.29) Apply ↓	Max 4.6 (2) 6.8 (3) 11.3 (4) 6.9 (2) 20.3 (9) 21.4 (5) 34.4 (11) 51.7 (11) 40.1 (9) OK	Std 0.8301 1.178 2.074 2.074 2.074 2.079 0.092 5.709 10.05 5.213 X Cancel

FxIn Dol: 0.20 % Pkst: 28.74 % Grnst: 0.03 % CxIn Dol: 21.65 % Mar SS: 27.62 %

GM3

Givio

Modified Winfield (version 1 (after proportions, before ranges adjustment)



Style Info Statistics Disc. Stat Histogram Colors Operations Variogram Image: Statistics For zone: Image: Zone WINF (WINF-FTRLY) Min, mean, max and std values are for the interval height Numbers in brackets represent the corresponding number of cells. Image: Statistics for the entire property of the zone: Image: Code Name % N Intervals Min Mean Max Statistics Image: Code Name % N Intervals Min Mean Max Statistics Image: Code Name % N Intervals Min Mean Max Statistics Image: Code Name % N Intervals Min Mean Max Statistics Image: Code Name % N Intervals Min Mean Max Statistics Image: Code Name % N Intervals 0.01 4.01(4.9) 4.01(4.9) 4.01(4.9) 4.01(4.9) 4.01(4.9) 4.01(4.9) 4.01(4.9) 4.01(4.9) 4.01(4.9) 4.01(4	3 Set	ttings fo	or 'F	1_G/	4XE [U]'			?
Image: Weight of the state interval weight in the state interval height. Numbers in brackets represent the corresponding number of cells. Image: Weight of the state interval weight is statistics for the entire property of the zone: Image: Weight of the state interval weight is statistics for the entire property of the zone: Image: Weight of the state interval weight is statistics for the entire property of the zone: Image: Weight of the state interval weight is statistics for the entire property of the zone: Image: Weight of the state interval weight is statistics for the entire property of the zone: Image: Weight of the state interval weight is statistics for the entire property of the zone: Image: Weight of the state interval weight is statistic for the entire property of the zone: Image: Weight of the state interval weight is statistic for the upscaled cells of the zone: Image: Weight of the upscaled cells of the zone: Image: Weight of the upscaled cells of the zone: Image: Weight of the state is statistic for the upscaled cells of the zone: Image: Weight of the state is statistic for the upscaled cells of the zone: Image: Weight of the state is state is state in the state is state is state in the state is state is state is state in the state is state in the state is state is state is state is state in the state is state is state is state is state in the state is state is state is state in the state is state is state is state in the state is state is state is state in the state is state is	Style	Info Statist	tics Dis	c. Stat. H	listogram	Colors O	perations	Variogram	
Min, mean, max and std values are for the interval height. Numbers in brackets represent the corresponding number of cells. Image: Statistics for the entire property of the zone: Code Name % N Intervals Min Mean Max 9 Image: O Cont SS 0.00 6 5 2.0 (1) 3.2 (1.2) 4.6 (2) 0.83 Image: O Cont SS 0.00 95 78 1.5 (1) 3.3 (1.22) 6.8 (3) 1.1 Image: O Cont SS 0.00 23 19 1.3 (1) 3.6 (1.21) 11.3 (4) 2.02 Image: O Mark Sitt 11.61 824194 558758 0.7 (1) 4.0 (1.4) 38.8 (10) 2.7 Image: O Mark Sitt 11.10 787836 560763 0.7 (1) 4.0 (1.4) 31.7 (7) 3.0 Image: O Mark Sitt 11.30 7.9 (1.4) 4.87876 828454 0.7 (1) 6.7 (2.18) 6.7 (1) 1.4 (1.4) 31.7 (7) 3.0 Image: O Mark Sitt N Intervals Min Mean Max S <td></td> <td>🔽 For zo</td> <td>one:</td> <td>🖁 Zone W</td> <td>INF (WINF-</td> <td>FTRLY)</td> <td></td> <td></td> <td>•</td>		🔽 For zo	one:	🖁 Zone W	INF (WINF-	FTRLY)			•
Image: Statistics for the entire property of the zone: Code Name % N Intervals Min Mean Max 9 0 Cont SS 0.00 6 5 2.0(1) 3.2(1.2) 4.6(2) 0.8 1 Crs Silt 0.00 95 78 1.5(1) 3.3(1.22) 6.8(3) 1.1 2 Fn Silt & Sh 0.00 23 19 1.3(1) 3.6(1.21) 11.3(4) 2.0 3 Mar Silt 1.161 824194 558758 0.7(1) 4.2(1.48) 47.3(11) 3.6(1.21) 11.3(4) 2.0 5 Wkst 11.101 787836 560763 0.7(1) 4.0(1.4) 31.8(10) 2.7 6 Fxln Dol 1.37 96971 69480 0.8(1) 4.1(1.4) 31.7(7) 3.0 7 Pkst-Grmst 20.96 1487876 828454 0.7(1) 5.7(1.8) 67.9(11) 4.8 9 Mkin Dol 29.45 2089981 956648 0.7(1) 3.6(1.21) 11.4 4.6(2) 0.83	Min, mea	n, max and sto	d values	are for the	interval he	ight.			
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Image: Statistics for the entire property of the zone: Code Name % N Intervals Min Mean Max 9 0 Cont SS 0.00 6 5 2.0 (1) 3.2 (1.2) 4.6 (2) 0.83 1 Crs Silt 0.00 95 78 1.5 (1) 3.3 (1.22) 6.8 (3) 1.1 2 Fn Silt & Sh 0.00 23 19 1.3 (1) 3.6 (1.21) 11.3 (4) 2.0 3 Mar Silt 11.61 824194 558758 0.7 (1) 4.2 (1.48) 47.3 (11) 3.8 (10) 2.7 6 Fxin Dol 1.37 96971 69480 0.8 (1) 4.1 (1.4) 31.7 (7) 3.0 7 Pkst-Grnst 20.96 1487876 828454 0.7 (1) 5.5 (1.8) 67.9 (11) 4.8 9 Mxin Doi 29.45 2089981 956648 0.7 (1) 5.6 (1.94) 57.9 (11) 4.8 9 Mxin Doi 29.45 2089981 956648 0.7 (1) 5.6 (1.94) 57.9 (11) 4.8									
Code Name % N Intervals Min Mean Max State 0 Cont SS 0.00 6 5 2.0 (1) 3.2 (1.2) 4.6 (2) 0.83 1 Crs Silt 0.00 95 78 1.5 (1) 3.3 (1.22) 6.8 (3) 1.1 2 Fn Silt & Sh 0.00 23 19 1.3 (1) 3.6 (1.21) 11.3 (4) 2.0 3 Mar Silt 11.61 824194 558758 0.7 (1) 4.2 (1.48) 47.3 (11) 3.3 4 Mdst 0.46 32608 29367 0.8 (1) 3.6 (1.11) 19.8 (4) 2.0 5 Wkst 11.10 787836 560763 0.7 (1) 4.0 (1.4) 38.8 (10) 2.7 6 Fxin Dol 1.37 96971 69480 0.8 (1) 4.1 (1.4) 31.7 (7) 3.0 7 Pkst-Grnst 20.96 1487876 828454 0.7 (1) 5.6 (1.94) 57.9 (11) 4.8 9 Mxin Dol 29.45 20899981 956648 0.7 (1) <td>\rm Stati</td> <td>istics for the er</td> <td>ntire prop</td> <td>erty of the</td> <td>zone:</td> <td></td> <td></td> <td></td> <td></td>	\rm Stati	istics for the er	ntire prop	erty of the	zone:				
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1 Crs Site 0.00 95 78 1.5 (1) 3.3 (122) 6.8 (3) 1.1 2 Fn Silt & Sh 0.00 23 19 1.3 (1) 3.6 (121) 11.3 (4) 2.0 3 Mar Silt 11.61 824194 558758 0.7 (1) 4.2 (1.48) 47.3 (11) 3 4 Mdst 0.46 32608 29367 0.8 (1) 3.6 (1.11) 19.8 (4) 2.0 5 Wkst 11.10 787836 560763 0.7 (1) 4.0 (1.4) 38.8 (10) 2.7 6 Fxin Dol 1.37 96971 69480 0.8 (1) 4.1 (1.4) 31.7 (7) 3.0 7 Pkst-Grmst 20.96 1487876 828454 0.7 (1) 5.6 (1.94) 57.9 (11) 4.8 9 Mxin Dol 2.9.45 2089981 956648 0.7 (1) 5.6 (1.94) 57.9 (11) 4.8 9 Mxin Dol 2.9.45 2.081 0.7 (1) 5.6 (1.21) 11.3 (4) 2.0 10 Mar SS 2.5.05 1777819 914134 0.		ContSS	0.00	6	intervais 5	20(1)	32(12)	46(2)	0.8301
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3 Mar Silt 11.61 824194 558758 0.7 (1) 4.2 (1.48) 47.3 (11) 3 4 Mdst 0.46 32608 29367 0.8 (1) 3.6 (1.11) 19.8 (4) 2.0 5 Wkst 11.10 787836 560763 0.7 (1) 4.0 (1.4) 38.8 (10) 2.7 6 Fxin Dol 1.37 96971 69480 0.8 (1) 4.1 (1.4) 31.7 (7) 3.0 7 Pkst-Grmst 20.96 1487876 828454 0.7 (1) 5.5 (1.8) 67.9 (11) 4.8 9 Mxin Dol 29.45 2089981 956648 0.7 (1) 5.6 (1.94) 57.9 (11) 4.8 9 Mxin Dol 29.45 2089981 956648 0.7 (1) 5.6 (1.94) 57.9 (11) 4.8 9 Mxin Dol 29.45 20.011 3.2 (1.2) 4.6 (2) 0.83(1) 10 Mar SS 0.04 6 5 2.0 (1) 3.2 (1.2) 4.6 (2) 0.83(1) 11 Crs Silt 0.67 95 78 1.5 (1) 3.	2	Fn Silt & Sh	0.00	23	19	1.3 (1)	3.6 (1.21)	11.3 (4)	2.074
4 Mdst 0.46 32608 29367 0.8 (1) 3.6 (1.11) 19.8 (4) 2.0 5 Wkst 11.10 787836 560763 0.7 (1) 4.0 (1.4) 38.8 (10) 2.7 6 Fxin Dol 1.37 96971 69480 0.8 (1) 4.1 (1.4) 31.7 (7) 3.0 7 Pkst-Grmst 20.96 1487876 828454 0.7 (1) 5.5 (1.8) 67.9 (11) 4.8 9 Mxin Dol 29.45 2089981 956648 0.7 (1) 5.6 (1.94) 57.9 (11) 4.8 9 Mxin Dol 29.45 2089981 956648 0.7 (1) 5.6 (1.94) 57.9 (11) 4.8 9 Mxin Dol 29.45 2089981 914134 0.7 (1) 5.6 (1.94) 57.9 (11) 4.8 9 Statistics for the upscaled cells of the zone: 57.9 (11) 4.8 1 Crs Sit 0.67 95 78 1.5 (1) 3.3 (1.22) 6.8 (3) 1.1 1 Crs Sit 0.67 95 78 1.5 (1) </td <td>3</td> <td>Mar Silt</td> <td>11.61</td> <td>824194</td> <td>558758</td> <td>0.7 (1)</td> <td>4.2 (1.48)</td> <td>47.3 (11)</td> <td>3.02</td>	3	Mar Silt	11.61	824194	558758	0.7 (1)	4.2 (1.48)	47.3 (11)	3.02
5 WKst 11.10 78/836 560/63 0.7 (1) 4.0 (1.4) 38.8 (10) 2.7 6 Fxin Dol 1.37 96971 69480 0.8 (1) 4.1 (1.4) 31.7 (7) 3.0 7 Pkst-Grnst 20.96 1487876 828454 0.7 (1) 5.5 (1.8) 67.9 (11) 4.8 9 Mxin Dol 29.45 2089981 956648 0.7 (1) 5.6 (1.94) 57.9 (11) 4.8 10 Mar SS 25.05 1777819 914134 0.7 (1) 5.6 (1.94) 57.9 (11) 4.8 10 Mar SS 0.04 6 5 2.0 (1) 3.2 (1.2) 4.6 (2) 0.83(1) 11 Crs Sit 0.67 95 78 1.5 (1) 3.3 (1.22) 6.8 (3) 1.11 2 Fn Silt & Sh 0.16 23 19 1.3 (1) 3.6 (1.21) 11.3 (4) 2.00 3 Mar Silt 10.84 1547 1055 0.9 (1) 4.1 (1.47) 15.3 (6) 2.21 (1.3 (1) 3.3 (1.09) 6.9 (2) 1.00 3	4	Mdst	0.46	32608	29367	0.8 (1)	3.6 (1.11)	19.8 (4)	2.039
■ Yain Doin 1.37 36971 63480 0.6 (1) 4.1 (1.4) 31.7 (7) 33.7 (7) ■ 7 Pkst-Grmst 20.96 1487876 828454 0.7 (1) 5.5 (1.8) 67.9 (11) 4.8 ■ 9 Mxin Dol 29.45 2089981 956648 0.7 (1) 5.6 (1.94) 57.9 (11) 4.8 ■ 10 Mar SS 25.05 1777819 914134 0.7 (1) 5.6 (1.94) 57.9 (11) 4.8 ■ Statistics for the upscaled cells of the zone: 4.6 (2) 0.83(1) ■ 0 Cont SS 0.04 6 5 2.0 (1) 3.2 (1.2) 4.6 (2) 0.83(1) ■ 1 Crs Sit 0.67 95 78 1.5 (1) 3.3 (1.22) 6.8 (3) 1.11 ■ 2 Fn Silt & Sh 0.16 23 19 1.3 (1) 3.6 (1.21) 11.3 (4) 2.00 ■ 3 Mar Silt 10.84 1547 1055 0.9 (1) 4.1 (1.47) 15.3 (6) (2.21) ■ 4	5	Wkst Evin Del	11.10	/8/836	560/63	0.7(1)	4.0 (1.4)	38.8 (10)	2.729
9 Mxin Dol 29.45 2089981 956648 0.7 (1) 6.7 (21.8) 67.3 (11) 6.7 (21.8) 10 Mar SS 25.05 1777819 914134 0.7 (1) 5.6 (1.94) 57.9 (11) 4.8 Image: Statistics for the upscaled cells of the zone: Image: Statistics for the upscaled cells of the zone: Min Mean Max S Image: Code Name % N Intervals Min Mean Max S Image: Code Name % N Intervals Min Mean Max S Image: Code Name % N Intervals Min Mean Max S Image: Code Name % N Intervals Min Mean Max S Image: Code Name % N Intervals Min Mean Max S Image: Code Name % N Intervals Min Mean Max S Image: Code Name 0.67 95 78 1.5 (1) 3.3 (1.22) </td <td></td> <td>Pkst-Grnst</td> <td>20.96</td> <td>1487876</td> <td>828454</td> <td>0.0(1)</td> <td>4.1 (1.4) 5.5 (1.8)</td> <td>679(11)</td> <td>4 886</td>		Pkst-Grnst	20.96	1487876	828454	0.0(1)	4.1 (1.4) 5.5 (1.8)	679(11)	4 886
10 Mar SS 25.05 1777819 914134 0.7 (1) 5.6 (1.94) 57.9 (11) 4.8 Image: Statistics for the upscaled cells of the zone: Image: Statistics for the upscaled cells of the zone: Min Mean Max S Image: Code Name % N Intervals Min Mean Max S Image: Code Name % N Intervals Min Mean Max S Image: Code Name % N Intervals Min Mean Max S Image: Code Name % N Intervals Min Mean Max S Image: Code Name % N Intervals Min Mean Max S Image: Code Name % N Intervals Min Mean Max S Image: Code Name 0.67 95 78 1.5 (1) 3.3 (1.22) 6.8 (3) 1.11 Image: Code Mast 10.84 1547 1055 0.9 (1) 4.1 (1.7)	9	MxIn Dol	29.45	2089981	956648	0.7(1)	6.7 (2.18)	67.3 (11)	6.545
Statistics for the upscaled cells of the zone: Code Name % N Intervals Min Mean Max S 0 Cont SS 0.04 6 5 2.0 (1) 3.2 (1.2) 4.6 (2) 0.830 1 Crs Silt 0.67 95 78 1.5 (1) 3.3 (1.22) 6.8 (3) 1.11 2 Fn Silt & Sh 0.16 23 19 1.3 (1) 3.6 (1.21) 11.3 (4) 2.00 3 Mar Silt 10.84 1547 1055 0.9 (1) 4.1 (1.47) 153.3 (6) 2.21 4 Mdst 0.58 83 76 1.5 (1) 3.3 (1.09) 6.9 (2) 1.00 5 Wkst 10.05 1434 882 0.9 (1) 4.5 (1.63) 20.3 (9) 2.0 6 Fxin Dol 0.92 132 99 1.3 (1) 4.1 (1.33) 21.4 (5) 3.00 7 Pkst-Grmst 20.39 2910 1221 1.3 (1) 7.2 (2.38) 34.4 (11) 5.7 9 Mkin Dol 36.85	10	Mar SS	25.05	1777819	914134	0.7 (1)	5.6 (1.94)	57.9 (11)	4.809
Image: Statistics for the upscaled cells of the zone: Code Name % N Intervals Min Mean Max S 0 Cont SS 0.04 6 5 2.0 (1) 3.2 (1.2) 4.6 (2) 0.83 1 Crs Silt 0.67 95 78 1.5 (1) 3.3 (1.22) 6.8 (3) 1.1 2 Fn Silt & Sh 0.16 23 19 1.3 (1) 3.6 (1.21) 11.3 (4) 2.00 3 Mar Silt 10.84 1547 1055 0.9 (1) 4.1 (1.47) 15.3 (6) 2.21 4 Mdst 0.58 83 76 1.5 (1) 3.3 (1.09) 6.9 (2) 1.00 5 Wkst 10.05 1434 882 0.9 (1) 4.5 (1.63) 20.3 (9) 2.0 6 Fxln Dol 0.92 132 99 1.3 (1) 4.1 (1.33) 21.4 (5) 3.00 7 Pkst-Grmst 20.39 2910 1221 1.3 (1) 72 (2.38) 34.4 (11) 5.7 9 Mxln Dol 36.85	àà .								
Code Name % N Intervals Min Mean Max S 0 Cont SS 0.04 6 5 2.0 (1) 3.2 (1.2) 4.6 (2) 0.83 1 Crs Silt 0.67 95 78 1.5 (1) 3.3 (1.22) 6.8 (3) 1.1 2 Fn Silt & Sh 0.16 2.3 19 1.3 (1) 3.6 (1.21) 11.3 (4) 2.0 3 Mar Silt 10.84 1547 1055 0.9 (1) 4.1 (1.47) 15.3 (6) 2.20 4 Mdst 0.58 83 76 1.5 (1) 3.3 (1.09) 6.9 (2) 1.00 5 Wkst 10.05 1434 882 0.9 (1) 4.5 (1.63) 20.3 (9) 2.4 6 Fxln Dol 0.92 132 99 1.3 (1) 4.1 (1.33) 21.4 (5) 3.0 7 Pkst-Grnst 20.39 2910 1221 1.3 (1) 7.2 (2.38) 34.4 (11) 5.7 9 Mxln Dol 36.85 5260 1465 1.3 (1) 11.5 (3	Stat	tistics for the up	oscaled	cells of the	e zone:				
0 Cont SS 0.04 6 5 2.0 (1) 3.2 (1.2) 4.6 (2) 0.83 1 Crs Silt 0.67 95 78 1.5 (1) 3.3 (1.22) 6.8 (3) 1.1 2 Fn Silt & Sh 0.16 23 19 1.3 (1) 3.6 (1.21) 11.3 (4) 2.0 3 Mar Silt 10.84 1547 1055 0.9 (1) 4.1 (1.47) 15.3 (6) 2.24 4 Mdst 0.58 83 76 1.5 (1) 3.3 (1.09) 6.9 (2) 1.00 5 Wkst 10.05 1434 882 0.9 (1) 4.5 (1.63) 20.3 (9) 2.4 6 Fxln Dol 0.92 132 99 1.3 (1) 4.1 (1.33) 21.4 (5) 3.0 7 Pkst-Grnst 20.39 2910 1221 1.3 (1) 7.2 (2.38) 34.4 (11) 5.77 9 Mxln Dol 36.85 5260 1465 1.3 (1) 11.5 (3 51.7 (11) 10.4 10 Mar SS 19.50 2784 1217 1.0 (1) <td< td=""><td>Code</td><td>Name</td><td>%</td><td>N</td><td>Intervals</td><td>Min</td><td>Mean</td><td>Max</td><td>Std</td></td<>	Code	Name	%	N	Intervals	Min	Mean	Max	Std
1 Crs Silt 0.67 95 78 1.5 (1) 3.3 (1.22) 6.8 (3) 1.1 2 Fn Silt & Sh 0.16 23 19 1.3 (1) 3.6 (1.21) 11.3 (4) 2.0 3 Mar Silt 10.84 1547 1055 0.9 (1) 4.1 (1.47) 15.3 (6) 2.2 4 Mdst 0.58 83 76 1.5 (1) 3.3 (1.09) 6.9 (2) 1.0 5 Wkst 10.05 1434 882 0.9 (1) 4.5 (1.63) 20.3 (9) 2.0 6 Fxln Dol 0.92 132 99 1.3 (1) 4.1 (1.33) 21.4 (5) 3.0 7 Pkst-Grnst 20.39 2910 1221 1.3 (1) 7.2 (2.38) 34.4 (11) 5.7 (11) 9 Mxln Dol 36.85 5260 1465 1.3 (1) 11.5 (3 51.7 (11) 10.4 10 Mar SS 19.50 2784 1217 1.0 (1) 6.9 (2.29) 40.1 (9) 5.2	0	Cont SS	0.04	6	5	2.0 (1)	3.2 (1.2)	4.6 (2)	0.8301
2 Fn Silt & Sh 0.16 23 19 1.3 (1) 3.6 (1.21) 11.3 (4) 2.0 3 Mar Silt 10.84 1547 1055 0.9 (1) 4.1 (1.47) 15.3 (6) 2.2 4 Mdst 0.58 83 76 1.5 (1) 3.3 (1.09) 6.9 (2) 1.0 5 Wkst 10.05 1434 882 0.9 (1) 4.5 (1.63) 20.3 (9) 2.0 6 Fxln Dol 0.92 132 99 1.3 (1) 4.1 (1.33) 21.4 (5) 3.0 7 Pkst-Grnst 20.39 2910 1221 1.3 (1) 7.2 (2.38) 34.4 (11) 5.7 9 Mxln Dol 36.85 5260 1465 1.3 (1) 11.5 (3 51.7 (11) 10.4 10 Mar SS 19.50 2784 1217 1.0 (1) 6.9 (2.29) 40.1 (9) 5.2	1	Crs Silt	0.67	95	78	1.5 (1)	3.3 (1.22)	6.8 (3)	1.178
3 Mar Silt 10.84 1547 1055 0.9 (1) 4.1 (1.47) 15.3 (6) 2.21 4 Mdst 0.58 83 76 1.5 (1) 3.3 (1.09) 6.9 (2) 1.01 5 Wkst 10.05 1434 882 0.9 (1) 4.1 (1.33) 20.3 (9) 2.1 6 Fxln Dol 0.92 132 99 1.3 (1) 4.1 (1.33) 21.4 (5) 3.0 7 Pkst-Grnst 20.39 2910 1221 1.3 (1) 7.2 (2.38) 34.4 (11) 5.7 9 Mxln Dol 36.85 5260 1465 1.3 (1) 11.5 (3 51.7 (11) 10.4 10 Mar SS 19.50 2784 1217 1.0 (1) 6.9 (2.29) 40.1 (9) 5.2	2	Fn Silt & Sh	0.16	23	19	1.3 (1)	3.6 (1.21)	11.3 (4)	2.074
↓ widst 0.36 63 76 1.5 (1) 3.5 (1.09) 6.3 (2) 1.0 ↓ 5 Wkst 10.05 1434 882 0.9 (1) 4.5 (1.63) 20.3 (9) 2.1 ↓ 6 Fxln Dol 0.92 132 99 1.3 (1) 4.1 (1.33) 21.4 (5) 3.0 ↓ 7 Pkst-Grnst 20.39 2910 1221 1.3 (1) 7.2 (2.38) 34.4 (11) 5.7 ↓ 9 Mxin Dol 36.85 5260 1465 1.3 (1) 11.5 (3 51.7 (11) 10.0 ↓ 10 Mar SS 19.50 2784 1217 1.0 (1) 6.9 (2.29) 40.1 (9) 5.2	3	Mar Silt Mdot	10.84	1547	1055	0.9(1)	4.1 (1.47)	15.3 (6)	2.203
G Fish Dol 0.92 132 99 1.3 (1) 4.1 (1.33) 21.4 (5) 3.0 7 Pkst-Grnst 20.39 2910 1221 1.3 (1) 7.2 (2.38) 34.4 (11) 5.7 9 Mkin Dol 36.85 5260 1465 1.3 (1) 11.5 (3 51.7 (11) 10.0 10 Mar SS 19.50 2784 1217 1.0 (1) 6.9 (2.29) 40.1 (9) 5.2	5	Wkst	10.05	1434	882	0.9(1)	4.5 (1.03)	20.3 (9)	2.67
7 Pkst-Grnst 20.39 2910 1221 1.3 (1) 7.2 (2.38) 34.4 (11) 5.7 9 MxIn Dol 36.85 5260 1465 1.3 (1) 11.5 (3 51.7 (11) 10.1 10 Mar SS 19.50 2784 1217 1.0 (1) 6.9 (2.29) 40.1 (9) 5.2*	6	FxIn Dol	0.92	132	99	1.3 (1)	4.1 (1.33)	21.4 (5)	3.019
9 MxIn Dol 36.85 5260 1465 1.3 (1) 11.5 (3 51.7 (11) 10.1 10 Mar SS 19.50 2784 1217 1.0 (1) 6.9 (2.29) 40.1 (9) 5.2 37 Copy to output sheet: ▼ List 1 ▼ List 2 ■	7	Pkst-Grnst	20.39	2910	1221	1.3 (1)	7.2 (2.38)	34.4 (11)	5.709
□ 10 Mar SS 19.50 2784 1217 1.0 (1) 6.9 (2.29) 40.1 (9) 5.2 ③ Copy to output sheet: ▼ List 1 ▼ List 2 □ Reset □	9	MxIn Dol	36.85	5260	1465	1.3 (1)	11.5 (3	51.7 (11)	10.05
🖹 Copy to output sheet 🔽 List 1 🔽 List 2 🔲 Reset 🕒	10	Mar SS	19.50	2784	1217	1.0 (1)	6.9 (2.29)	40.1 (9)	5.213
🖹 Copy to output sheet: 🔽 List 1 🔽 List 2 🔲 Reset									
	Cor	ov to output sh	eet 🔽	List1	✓ List2	Reset	G ₃		
						1	Apply	OK	Canor

Not much different. Reduce more

Winfield next try better (more proportion adjustment), but need to change ranges like in Krider



Č	Se	ttings f	or 'F	11_G	M4XE	[U]'			? ×
ſ	Style	Info Stati	stics Dis	sc. Stat.	Histogram	Colors (Operations	Variogran	n
	**	For z	one:	👹 Zone V	VINF (WINF	-FTRLY)			-
	Min. me	an. max and s	ı td values	are for th	e interval he	eiaht.			
I	Numbe	rs in brackets	epresen	t the corre	sponding n	umber of c	ells.		
	📕 Sta	atistics for the e	ntire pro	perty of th	e zone:				
	Code	Name	%	N	Intervals	Min	Mean	Max	Std
	0	Cont SS	0.00	6	5	2.0 (1)	3.2 (1.2)	4.6 (2)	0.8301
	■ 1 ■ 2	Crs Silt En Silt & Sk	0.00	95	/8	1.5 (1)	3.3 (1.22)	6.8 (3) 11 3 (4)	1.1/8
	3	MarSilt	11.86	841906	570855	0.7(1)	4.2 (1.47)	47.3 (11)	3.077
	4	Mdst	0.47	33467	29729	0.8 (1)	3.2 (1.13)	19.8 (4)	1.566
	5	Wkst	11.55	820092	579706	0.7 (1)	4.0 (1.41)	41.4 (10)	2.798
	6	Exin Dol Diret-Grnet	1.21	85/69	61981	0.8 (1)	4.3 (1.38)	31./(/)	3.149
	9	Mxin Dol	27.42	1946081	897632	0.7(1)	6.7 (2.17)	64.0 (11)	6.535
	10	Mar SS	25.62	1818446	930891	0.7 (1)	5.6 (1.95)	60.1 (11)	4.806
	<								>
1	88 o.								
		austics for the t	ipscaled	cells of th	ie zone:				
	0.1		01						
	Code	ContSS	0.04	<u> </u>	Intervals	2 0 (1)	3 2 (1 2)	4.6.(2)	0.8301
	1	Crs Silt	0.67	95	78	1.5 (1)	3.3 (1.22)	6.8 (3)	1.178
	2	Fn Silt & S	h 0.16	23	19	1.3 (1)	3.6 (1.21)	11.3 (4)	2.074
	3	Mar Silt	10.84	1547	1055	0.9 (1)	4.1 (1.47)	15.3 (6)	2.203
	4	Mdst Wket	0.58	83	/6	1.5 (1)	3.3 (1.09)	6.9 (2) 20 3 (9)	2.67
	6	FxIn Dol	0.92	132	99	1.3 (1)	4.1 (1.33)	21.4 (5)	3.019
	7	Pkst-Grns	t 20.39	2910	1221	1.3 (1)	7.2 (2.38)	34.4 (11)	5.709
	9	MxIn Dol	36.85	5260	1465	1.3 (1)	11.5 (3	51.7 (11)	10.05
	0	Marss	19.50	2784	1217	1.0 (1)	6.9 (2.29)	40.1 (9)	5.213
		onv to output s	heet G	I ist 1	✓ List2	E Reset	Ba		
		py to output s	100L	LIST	LIGE2	1 110361			
						1		or L 💆	Cancal
						V P			Cancer

Winfield with new proportions and new "Krider" ranges (used this one)



Style	Info Statist	ics Dis	c. Stat. H	istogram Co	olors Op	perations	Variogram	
***	🔽 For zo	ne: 🖻	👹 Zone Wl	NF (WINF-F1	(RLY)			
/in, mea	an, max and std	l values	are for the	interval heig	nt.	U		
vumbers	s in brackets re	present	the corres	ponaing num	ber of ce	lis.		
📕 Stat	istics for the en	tire prop	perty of the	zone:				
Code	Name	%	N	Intervals	Mir	n Mear	n Max	Std
1	Cont 55 Crs Silt	0.00	95	5 78	2.0 (1) 3.2(1.2) 33(1.22) 4.6(2)) 6.8(3)	1 178
2	Fn Silt & Sh	0.00	23	19	1.3 (1) 3.6 (1.21) 11.3 (4)	2.074
3	Mar Silt	13.80	979425	639956	0.7 (1) 4.4 (1.53) 57.2 (11)	3.2
4	Mdst	0.69	48919	41747	0.8 (1) 3.2 (1.17) 19.8 (5)	1.673
5	Wkst Evin Dol	13.12	930873	641206	0.7(1) 4.1 (1.45) 42.6 (11)	2.84
7	Pkst-Grnst	21.49	1525423	831375	0.7 (1) 5.6 (1.83) 66.0 (11)	5.014
9	MxIn Dol	24.56	1743158	855236	0.7 (1) 6.4 (2.04) 57.2 (11)	6.141
_ 10	Mar SS	25.08	1780142	904282	0.7 (1) 5.6 (1.97) 53.0 (11)	4.744
	Caller Carller							
Sta	usues for the up	scaled	cells of the	zone:				
Code	Name	%	N	Intervals	Min	Mean	Max	Std
0	Cont SS	0.04	6	5	2.0 (1)	3.2 (1.2)	4.6 (2)	0.8301
1	Crs Silt	0.67	95	78	1.5 (1)	3.3 (1.22)	6.8 (3)	1.178
_∠ _3	Fn Slit & Sn Mar Silt	0.16	23 1547	1055	1.3(1)	3.6 (1.21) 4.1 (1.47)	15.3 (4)	2.074
4	Mdst	0.58	83	76	1.5 (1)	3.3 (1.09)	6.9 (2)	1.092
5	Wkst	10.05	1434	882	0.9 (1)	4.5 (1.63)	20.3 (9)	2.67
6	FxIn Dol	0.92	132	99	1.3 (1)	4.1 (1.33)	21.4 (5)	3.019
7	Pkst-Grnst	20.39	2910	1221	1.3 (1)	7.2 (2.38)	34.4 (11)	5.709
10	Mar SS	36.65 19.50	5260 2784	1465	1.3 (1)	6.9 (2.29)	40.1 (9)	5.213
						. ((1)	

Better overall stats. Maybe a little too much F10 I like it.

Gage

GM4



Set	tings for	'F11_	GM4X	E [U]'				?
Style I	nfo Statistics	Disc. Sta	t Histogr	am Colors	Operation	ns Variog	ram	
#	For zone:	🙈 Zor	ne GAGE (V	VINF-FTRLY	0			-
lin, mea	n, max and std va	lues are fo	or the interv	al height.				
umbers	in brackets repre	sent the co	orrespondi	ng number o	fcells.			
_								
Stati:	stics for the entire	property o	of the zone:					
Code	Name	%	N	Intervals	Min	Mean	Max	Std
0	ContSS	7.05	272757	192972	0.7 (1)	7.4 (1.41)	50.3 (6)	5.202
1	Crs Silt	84.34	3264990	824582	0.1 (1)	19.5 (3	65.8 (6)	12.97
3	MarSilt	0.00	312137	229695	1.2 (1)	5.2 (1.08)	42.3 (6)	3.383
5	Wkst	0.05	1885	1701	2.2 (1)	5.3 (1.11)	16.0 (2)	2.218
10	Pkst-Grnst Mar SS	0.10	3935 11659	3585 9595	0.9 (1)	4.6 (1.1)	14.0 (3) 29 7 (6)	2.498
		0.00	. 1000	5555		J. ((1.22)	20.7 (0)	0.001
Stati	istics for the upsca	aled cells	of the zone					
Code	Name	%	N	Intervals	Min	Mean	Max	Std
1	Cont SS Crs Silt	4.42	344 6752	259 1517	1.5(1) 0 0 0 (1) 2	5.8 (1.33) 20 2 (4	28.5 (4)	4.321
2	Fn Silt & Sh	8.26	642	441	0.6 (1)	4.4 (1.46)	13.8 (6)	2.115
3	Mar Silt	0.09	7	7	2.5 (1)	4.3 (1)	6.8 (1) 5 7 (2)	1.599
7	Pkst-Grnst	0.14	11	10	1.3 (1)	4.8 (1.1)	10.3 (2)	2.593
10	Mar SS	0.21	16	16	1.5 (1)	4.5 (1)	7.9 (1)	2.162
Y Con	w to output sheet		1 🔽 Liet	2 🗆 Res	ot Ba			
	y to output sheet	J• 2131			<u> </u>			
					v	Apply 🖌	ОК	🗶 Cancel
	Geo	mod3	B Mode	el facies	stats			
	Zone	GAGE	resulti	na facies	s fractic	ns.		
						-		
	Cont	SS 0	11 %					
	Fine	Silt & S	1 /0	33 %				
	Cre Q	ilt. UE	8%	/0				
	Mar Q	Silt. 0.0	20%					
		m. 0.0	0 /0					
	Mdet.	0 00 9	2/2					
	Mdst:	0.00	%					

Pkst: 0.00 % Grnst: 0.00 % Cxln Dol: 0.00 % Mar SS: 0.49 %

GM4



Towanda

Twnd 6, K=24 of Winf-FtRly



GM3

Twnd 6, K=24 of Winf-FtRly

Settings for 'F11_GM4XE [U]'

Style Info Statistics Disc. Stat. Histogram Colors Operations Variogram

For zone: Zone TWND (WINF-FTRLY)

Numbers in brackets represent the corresponding number of cells.

Statistics for the entire property of the zone:

									_
Code	Name	%	N	Intervals	Min	Mean	Max	Std	
0	ContSS	0.20	18429	12077	0.1 (1)	4.1 (1.53)	24.3 (7)	3.613	
1	Crs Silt	0.09	8291	6369	0.5 (1)	2.5 (1.3)	16.6 (5)	1.833	
2	Fn Silt & Sh	2.37	214350	140350	0.0 (1)	3.3 (1.53)	38.8 (10)	3.066	
3	Mar Silt	3.88	350718	239345	0.0 (1)	3.3 (1.47)	37.4 (9)	2.945	
4	Mdst	2.48	223820	168265	0.0 (1)	3.4 (1.33)	29.2 (7)	2.493	
5	Wkst	20.89	1886729	1100283	0.0 (1)	4.3 (1.71)	53.8 (14)	4.05	
6	FxIn Dol	4.36	393620	243723	0.0 (1)	4.3 (1.62)	36.9 (11)	3.705	
7	Pkst-Grnst	43.12	3894606	1430107	0.0 (1)	7.5 (2.72)	72.1 (14)	8.23	
9	MxIn Dol	2.91	263265	173639	0.0 (1)	4.4 (1.52)	38.6 (11)	3.382	
10	Mar SS	19.70	1779151	913074	0.0 (1)	4.6 (1.95)	75.4 (14)	4.313	

Statistics for the upscaled cells of the zone:

Code	Name	%	N	Intervals	Min	Mean	Max	Std	-
0	Cont SS	0.15	28	23	0.7(1)	3.1 (1.22)	8.7 (2)	1.862	_
1	Crs Silt	0.12	22	18	0.7(1)	2.6 (1.22)	4.1 (2)	1.006	
2	Fn Silt & Sh	1.80	326	229	0.6 (1)	3.7 (1.42)	22.6 (6)	2.743	
3	Mar Silt	2.57	465	370	0.6 (1)	2.8 (1.26)	10.0 (7)	1.461	
4	Mdst	1.96	356	269	0.6 (1)	3.8 (1.32)	16.5 (5)	2.502	
5	Wkst	18.40	3335	1696	0.4 (1)	5.4 (1.97)	42.8 (14)	4.703	
6	FxIn Dol	3.88	703	424	0.7(1)	5.0 (1.66)	29.7 (8)	3.865	
7	Pkst-Grnst	49.97	9056	2105	0.4 (1)	12.8 (4.3)	57.9 (14)	11.25	
9	MxIn Dol	2.69	488	308	2.0 (1)	5.6 (1.58)	37.6 (11)	3.817	
10	Mar SS	18.45	3344	1373	0.6 (1)	6.2 (2.44)	32.6 (14)	4.595	
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B/Twnd

Facies

GM4



GM3



?× Settings for 'F11_GM4XE [U]' Style Info Statistics Disc. Stat. Histogram Colors Operations Variogram For zone: Sone B/TWND (WINF-FTRLY) • ** Min, mean, max and std values are for the interval height. Numbers in brackets represent the corresponding number of cells.

B Statistics for the entire property of the zone:

С	ode	Name	%	N	Intervals	Min	Mean	Max	Std
	0	Cont SS	25.70	651268	436232	0.0 (1)	7.1 (1.49)	55.3 (4)	5.613
	1	Crs Silt	34.74	880191	530169	0.0 (1)	7.9 (1.66)	57.3 (4)	6.278
	2	Fn Silt & Sh	3.71	94053	80237	0.0 (1)	5.1 (1.17)	28.0 (4)	3.631
	3	Mar Silt	16.22	410935	330890	0.0 (1)	5.3 (1.24)	48.7 (4)	4.133
	4	Mdst	0.26	6673	6160	0.2 (1)	4.4 (1.08)	18.6 (2)	3.664
	5	Wkst	2.88	73090	64577	0.0 (1)	3.9 (1.13)	31.7 (4)	2.952
	6	FxIn Dol	0.45	11482	10434	0.0 (1)	3.0 (1.1)	10.0 (3)	2.099
	7	Pkst-Grnst	7.03	178082	142199	0.0 (1)	4.6 (1.25)	48.6 (4)	3.377
	9	MxIn Dol	0.14	3557	2771	0.0 (1)	1.6 (1.28)	6.5 (3)	1.008
	10	Mar SS	8.87	224680	182686	0.0 (1)	6.3 (1.23)	38.7 (4)	4.169

Statistics for the upscaled cells of the zone:

Code	Name	%	N	Intervals	Min	Mean	Max	Std
0	Cont SS	19.16	989	753	0.3 (1)	6.0 (1.31)	32.5 (4)	3.601
1	Crs Silt	41.29	2131	1162	0.3 (1)	7.8 (1.83)	41.4 (4)	5.276
2	Fn Silt & Sh	4.22	218	196	0.4 (1)	4.3 (1.11)	18.8 (3)	2.707
3	Mar Silt	15.07	778	696	0.3 (1)	3.9 (1.12)	19.5 (4)	2.379
4	Mdst	0.17	9	7	1.0 (1)	2.8 (1.29)	7.0 (2)	2.034
5	Wkst	2.09	108	87	0.7(1)	3.9 (1.24)	11.5 (4)	2.687
6	FxIn Dol	0.50	26	25	0.6 (1)	2.5 (1.04)	7.2 (2)	1.42
7	Pkst-Grnst	6.96	359	246	0.7 (1)	3.9 (1.46)	15.9 (4)	2.298
9	MxIn Dol	0.10	5	3	1.2 (1)	2.4 (1.67)	4.5 (3)	1.491
10	Mar SS	10.42	538	440	0.3 (1)	6.3 (1.22)	37.8 (4)	3.861

🛐 Copy to output sheet: 🔽 List 1 🔽 List 2 🔲 Reset 🛛 🔖

🖌 Apply 🖌 OK 🗶 Cancel

Geomod3 Model facies stats

Zone B/TWND resulting facies fractions:

Cont SS: 0.18 % Fine Silt & Sh: 65.33 % Crs Silt: 0.00 % Mar Silt: 14.88 % Mdst: 0.00 % Wkst: 0.00 % FxIn Dol: 0.00 % Pkst: 6.11 % Grnst: 0.00 % CxIn Dol: 0.00 % Mar SS: 13.50 %

FtRiley

GM4





Ftrly 7, K=9 of FtRly-A1sh

Ftrly 12, K=14 of FtRly-A1sh

Ftrly improved overall w/ more wkst in lower part. Reduced ss proportions slightly and re ran. Not much changed, but slightly better

Geomod3 Model facies stats
Zone FTRLY resulting facies fractions
Cont SS: 0.00 %
Crs Silt: 0.00 %
Mar Silt: 7.09 % Mdst: 14.26 %
Wkst: 11.62 % Fxln Dol: 6.04 %
Pkst: 49.57 % Grnst: 0.01 %
Cxin Dol: 0.39 % Mar SS: 11.02 %

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OLIOUS
Mean Max Std
5.8 (1.26) 19.9 (5) 2.596
4.7 (1.15) 16.0 (4) 1.667
5.3 (1.25) 30.1 (5) 2.506
61(124) 40.5(7) 3.134
6.1 (1.16) 43.6 (6) 3.019
10.2 (2 103.7 (8.554
7.0 (1.47) 56.5 (12) 4.499
12.7 (2, 112.0 (10.7
6.0 (1.25) 46.5 (7) 3.05
7.0 (1.44) 73.5 (12) 4.837
Mean Max Std
(1.28) 13.2 (3) 2.721
(1.15) 13.6 (3) 2.157
(1.34) 21.4 (5) 3.534
(1,34) 21,4 (5) 3,534 (1,36) 36,9 (6) 4,079
(1.34) 21.4 (5) 3.534 (1.36) 36.9 (6) 4.079 (1.53) 43.6 (6) 5.162
(1.34) 21.4 (5) 3.534 (1.36) 36.9 (6) 4.079 (1.53) 43.6 (6) 5.162 (264.2 (12) 9.919
(1.34) 21.4 (5) 3.534 (1.36) 36.9 (6) 4.079 (1.53) 43.6 (6) 5.162 (2 64.2 (12) 9.919 (1.84) 47.9 (11) 7.474
(1.34) 21.4 (5) 3.534 (1.36) 36.9 (6) 4.079 (1.53) 43.6 (6) 5.162 (2. 64.2 (12) 9.919 (1.84) 47.9 (11) 7.474 (3. 87.0 (14) 13.39
(134) 21.4 (5) 3.534 (136) 36.9 (6) 4.079 (153) 43.6 (6) 5.162 (2. 64.2 (12) 9.919 (1.84) 47.9 (11) 7.474 (3. 87.0 (14) 13.39 (1.43) 46.5 (7) 5.245

Se	ttings f	or 'F	11_	GM4XE	[U]						2
syle	Info Stati-	stics D	isc. Sta	Histogran	n Color	00	eratio	ns Varios	men	1	
un I	D. Ford	inne I	EI Zon	OF THE VIET	IRLY-AT	SHO			-		
	le ruiz	one.]		or merily	and bala		-				-
in, mei	an. max and s	O VEIUE	as are to	r the interval	neight	ineli	10				
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A	пе			U	UT.	U	U	O L	LI	UL.	1:
					r -	-	Г				
Sta	tistics for the e	intire pr	operty o	f the zone:							
Code	Name	1 %	-	N Interve	ale	Min	M	ean	Max	Stel	-
0	ContSS	0.40	365	40 349	29 2	1(1)	49/1	05) 16	1 (3)	1.597	-
1	Crs Silt	0.27	241	53 233	00 2	5(1)	44(1	.04) 13	7(3)	1.26	
2	Fn Silt&	0.54	489	34 458	40 2	2(1)	49(1	07) 21	5 (5)	1,917	
3	Mar Silt	5.40	4875	11 3967	77 1	7(1)	6.1 (1	23) 40.	50	3,105	
4	Mdst	2.20	1985	93 1718	30 2	0(1)	59(1	16) 43.	6 (6)	2.972	
5	Wkst	34.67	31319	37 15113	32 1	8(1)	10.2	2. 103	1(8.47	
6	Fxin Dol	4.84	4376	29 3011	13 2	0(1)	7.0 (1	45) 49.5	(12)	4.34	
7	Pkst-Gmst	43.02	38858	92 15025	46 2	0(1)	12.7	2 101.0	1-	10.71	
9	Mode Dol	1.73	1563	85 1237	78 2	0(1)	6.0 (1	26) 46	50	3.408	
10	Mar SS	6.92	6254	92 4769	77 1	8(1)	63(1	31) 61.9	(10)	4,061	
Sta	itistics for the a	apscale	d cells	of the zone:				w			
Code	Name	0.37	- TN	Intervals	7. 9. (4)	201	nean	12.0.(2)	37	21	-
1	Crash	0.17	30	20	36(1)	630	1 15	13 6 (3)	21	57	
2	Fo Sik &	0.45	78	10	28/1)	54	134	214(5)	35	34	
	Mar Silt	5.03	881	645	30/1	691	1 361	369 (6)	40	79	
4	Mdst	2.05	360	236	26(1)	87	1.530	43.6 (6)	51	62	
5	Wkst	33.07	5736	2067	27(1)	13.9	12	642(12)	99	19	
6	Fxin Dol	353	613	334	28(1)	921	1.84)	479(11)	7.4	74	
7	Pkst-Gmst	45.95	7969	2226	27(1)	18.0	(3	87.0 (14)	13.	39	
9	Midn Dol	1.60	278	195	32(1)	77	1,43)	465(7)	52	45	
10	Mar SS	7.69	1334	627	28(1)	10.6	12	48.1 (9)	8,5	52	
r Co	py to output s	heet	🔽 List	1 🔽 List2	IT Re	set	44				
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							1	Apply	OK	C XC	and
							-	2.6.2.	_	_	-

Matfield



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Top Layer looks same

Wreford



Layer looks similar. May want to eliminate F1-2

Style	Info Statistic	s Disc. Stat	Histog	gram Col	ors Op	erations	Vario	ogram		
**	🔽 For zon	e: 🗎 Zon	e WREF	ORD (FTF	LY-A1S	H)				
/lin, mea Numbers	n, max and std v in brackets rep	ralues are for resent the co	rthe inter rrespon	val height ding numb	er of cell	s.				
B Stati	stics for the entil	е ргорепу о	rtne zone	B:						
Code	Name	%	N	Intervals	N	lin	Mean	M	lax	Std
0	Cont SS Cre Silt	0.03	1477	984 52282	2.1	(1) 3.0 (1) 3.0	3 (1.5)	12.6	(5) 2	2.424
2	Fn Silt & Sh	1.44	74110	54774	0.2	(1) 3.7	(1.35)	26.8	(7) 2	2.545
3	Mar Silt	9.95	513343	355234	0.1	1) 4.0	(1.45)	37.8	(8) 2	.931
4	Mdst	1.10	56529	46565	0.1	(1) 3.1	(1.21)	15.7	(4) 1	.803
5	Wkst	46.14 2	381839	1033552	0.1	(1) 6.3	3 (2.3)	46.7	(8) 5	5.232
6	Exin Dol Ricet Const	/.10	566266	239590	0.1	(1) 4.1	(1.53)	29.8	(8) 2	.881
8	PKst-Grnst PA-Boff	30.30 I: 1.43	74000	870040 53438	0.1	(1) 5.0 (1) 4.4	J (1.8) (1.38)	42.1	(õ) J (8)	3.11
10	MarSS	1.08	55958	39944	0.1	(1) 3.	7 (1.4)	26.2	(6) 2	.423
			C -1							
Stat	isues for the ups	caled cells o	i the zon	e.						
Code	Name	%	N Ir	nter	Min	Mea	n	Max	Std	
0	Cont SS	0.02	2	2	2.4 (1)	3.3 (1) 4	4.1 (1)	0.8486	
1	Crs Silt	0.72	69	62	1.1 (1)	3.0 (1.11) (3.9 (3)	1.246	
2	Fn Silt & Sh Mor Silt	0.91	87	8/	1.3(1)	2.6 (1) 4	1.5 (1)	0.6682	
4	Mdst	0.85	81	72	0.7(1) 0.7(1)	4.0 (1.4) 2 8 (1 13	0 I. 1) 10	7.3 (0) 15 (4)	2.138	
5	Wkst	46.15	4398	1741	1.0 (1)	7.1 (2.53) 29	9.8 (8)	5.089	
6	FxIn Dol	5.57	531	311	1.0 (1)	5.0 (1.71) 2	1.1 (8)	3.462	
7	Pkst-Grnst	32.72	3118	1608	1.0 (1)	5.6 (1.94) 29	9.1 (8)	3.077	
0 10	PA-Batt Mar SS	1.56	149	106	1.7(1)	4.0 (1.32 3.8 (1.24) 1') 1(1.0 (4)	1.826	
	Mar 00	1.41	134	100	0.7 (1)	5.0 (1.20	,	J.J (+)	1.755	
X 0						Do.				
S Cop	by to output shee	at. Je List		stz <u> </u>	Reset	43				
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		Ge	UIIC	NUS N	lodel	actes	stats			
		Zon	e WR	EFORD	result	ing fa	cies f	ractio	ns:	
			+ 55.	0 00 %						
			n 55: 5 6:14 9	0.00 % & Sh. 0	00.04					
					00 %					
		Crs	Silt: ().00 %						
		Ma	Silt:	8.68 %						
		Md	st: 14.	72 %						
		Wk	st: 18	15 %						
		Ev1	n Doly	1 83 0/						
				1.00 %						
			. 50.0							
		Grn	st: 0.0	JU %						

Mar SS: 5.29 %

New Wreford, after zapping F0-2



🔁 Set	tings f	or 'F	11_G	M4XE	[U]'			? ×
Style I	Info Statis	stics Di	sc. Stat.	Histogram	Colors	Operations	Variogra	im]
**	🔽 Forz	one:	💐 Zone \	WREFORD (FTRLY-A	A1SH)		•
Min, mea	n, max and s	td value:	s are for th	e interval he	eight.			
Numbers	in brackets r	epreser	nt the corre	esponding n	umber of	cells.		
🌐 Stati	stics for the e	ntire pro	perty of th	ie zone:				
Code	Name	%	N	Intervals	Mi	n Mear	n Ma	x Std
3	Mar Silt	10.01	516555	359675	0.1 (1) 4.0 (1.44) 32.7 (8	3) 2.746
4	Mdst Wkst	1.40	/2341	58110	0.1 (1	l) 3.2 (1.24 I) 65 (2.39) 17.7(5	b) 2.082
6	FxIn Dol	6.41	331123	215817	0.1 (1	1) 0.5 (2.59 1) 4.3 (1.53) 30.9 (8	3) 3,189
7	Pkst-Grnst	30.95	1597333	879900	0.1 (1) 5.1 (1.82	40.3 (8	3) 3.763
8	PA-Baff	1.39	71568	51992	0.5 (1) 4.4 (1.38) 33.4 (6	5) 2.762
10	Mar SS	1.34	68959	47750	0.1 (1	l) 3.7 (1.44) 28.0 (6	5) 2.565
ÅÅ ov r								
Stati	istics for the u	ipscaled	d cells of t	ne zone:				
Code	Name	%	N	Intervals	Min	Mean	Max	Std
3	Mar Silt	10.33	984	697	0.7 (1)	3.9 (1.41)	17.3 (6)	2.12
4	Mdst	0.85	81	72	0.7 (1)	2.8 (1.13)	10.5 (4)	1.641
5	WKSt Evin Dol	46.99	4478 535	315	1.0 (1)	7.0 (2.46) 4 9 (1 7)	29.8 (8)	5.062
7	Pkst-Grnst	33.25	3168	1658	1.0 (1)	5.5 (1.91)	29.1 (8)	3.075
8	PA-Baff	1.56	149	113	1.7 (1)	4.0 (1.32)	11.0 (4)	1.826
10	Mar SS	1.41	134	106	0.7 (1)	3.8 (1.26)	10.9 (4)	1.755
1								
🕅 Cor	ov to outout s	heet l	✓ List1	✓ List2	Rese	t 🗈		
	.,		2.01		,			
					v	Apply	🖊 ок	Cancel

A1sh

F0 is way under represented using the low HZ ranges. Much better restoring long ranges. May still be short relative to actual and that in training set.

Ċ	Se	tting	s for	'F11_	_GM₄	4XE_	Run1	[U]'			?	×
	Style	Info	Statistics	Disc. Sta	at. Hist	ogram	Colors Op	erations	Variogram			
	**		For zone	: 🗎 Zo	ne A1_S	6H (A1SH	H-B2LM)					•
N	Min, me	an, max	and std v	alues are f	or the int	erval he	ight.	le.				
		is in brac	ineta repr	coontaio c	onespe	nungne	inder of cer					
	🖽 Sta	itistics for	r the entire	e property	of the zo	ine:						_
	Code	Nam	ne	%	6	N	Intervals	Min	Mean	Max	Std	
	0	Con	tSS	5.8	3	145427	125333	0.0 (1)	6.7 (1.16)	48.9 (4)	4.452	
		Crs :	SIII	60.5i	5 1	510529 027200	/53280	0.0 (1)	10.3 (2 6 0 (1.2E)	60.3 (4)	8.795 E.610	
	99 Sta	atistics fo	r the upso	aled cells	of the zo	one:						
- [Code	Name	э [%	N	Interv	als M	1in Me	an Ma	x Std		
	0	Cont	SS	10.02	510	:	343 0.7	(1) 9.3 (1.	49) 42.0 (4) 5.998		
	1	Crs S	ilt	61.72	3142	14	462 0.0	(1) 9.2 (2.	15) 34.0 (4) 5.259		
	2	Fn Sil	t&Sh	28.27	1439	1	182 0.0	(1) 5.2 (1.:	22) 28.4 (4	+) 2.878		
	🖹 Co	py to ou	tput shee	t 🔽 Lis	t1 🔽	List 2	Reset					
									/ Apply	🖊 ОК	X Cano	el

Geomod3 Zone A1_SH resulting facies fractions:
Cont SS: 15.66 %
Fine Silt & Sh: 50.54 %
Crs Silt: 32.58 %
Mar Silt: 0.52 %
Mdst: 0.70 %
Wkst: 0.00 %
Fxln Dol: 0.00 %
Pkst: 0.00 %
Grnst: 0.00 %
Cxln Dol: 0.00 %
Mar SS: 0.00 %

🔁 Sei	ttings for	'F11_C	GM4XE	[U]'				? ×
Style	Info Statistics	Disc. Stat.	Histogram	Colors	perations	Variogra	m	
🛗 🔽 For zone: 🗮 Zone A1_SH (A1SH-B2LM)								-
Min, mea	Min, mean, max and std values are for the interval height.							
Numbers in brackets represent the corresponding number of cells.								
Statistics for the entire property of the zone:								
Code	Name	%	N	Intervals	Min	Mean	Max	< Std
0	Cont SS	10.18	253716	194535	0.0 (1)	8.7 (1.3)	46.0 (4) 5.446
1	Crs Silt	59.75	1489772	745203	0.0 (1)	10.1 (2)	60.2 (4) 8.232
Image: Big Statistics for the upscaled cells of the zone:								
Code	Name	%	N Ir	ntervals	Min	Mean	Max	Std
0	ContSS	10.02	510	343	0.7(1) 9.3	3 (1.49)	42.0 (4)	5.998
	Crs Silt	61.72	3142	1462	0.0 (1) 9.1	2 (2.15)	34.0 (4)	5.259
2	FII SIL& SI	20.27	1403	1102	0.0(1) 5.	2 (1.22)	20.4 (4)	2.070
🖹 Co	py to output sheet	t 🔽 List 1	✓ List 2	Reset	C ₂			
					V 1		ок	

A1Lm Run 1 not bad, but vertical distribution is off for the continental redbeds. Next run looks same statistically

Style Info Statistics Disc Stat Histogram Colors Operations Variogram	Style Info Statistics Disc. Stat. Histogram Colors Operations Variogram
Image: The second s	Image: Tor zone: Image: Zone A1_LM (A1SH-B2LM) Min, mean, max and std values are for the interval height. Numbers in brackets represent the corresponding number of cells.
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FtRiley QC

Sand has undue influence:

- 1. Consider reducing F10 in Ftrly
- 2. Too much being placed in areas w/o well control
- V Rge too high. SS distributed way too low in section around this one well.



A1Sh with short Hz ranges (F0-10, F1-5, F2-5)



Sand is not continuous but should be due to short ranges. West well is Cross H Cattle.





Layer 3 of 4

Run 2 F0-40, F1-25, F2-25



Longer Hz ranges and shorter V is much better





A1LM



Layer 2 looks about same



As does layer 5



But redbeds show up in the oddest places (due to vertical range)

Views from 2nd run



Layer 2 looks about same

As does layer 5

A1LM with longer range for F12, shorter vertical range



A1 Lm and core well ties



Alexander D2

Flower & Newby. Offset wells have more silt

Facies model modifications

- 1. Krider: reduced vertical proportions significantly for F9 and changed ranges 50/42/10
- 2. Winfield: reduced vertical proportions significantly for F9 and changed ranges 50/42/10
- 3. FtRiley: reduced vertical proportions slightly for F10 and changed vertical range from 21 to 8
- 4. Wreford: zapped all F0-1-2 in property calculator (made =U) and reduced vertical range for F10 to 8
- 5. Did not model F>2 in A1sh through B5sh (did not zap, just excluded from modeling), but did model in Csh
- Did not model F<3 in B1 and B5 LM, but did in the rest. A1 and C have additional 5th order cycles in places and the B2-3-4LMs are very thin in places (may actually be continental).

(5 and 6 above, cancel each other)

Porosity modeling

- 1. In workflows, double click on property modeling
- 2. Select zone to be modeled and unlock
- 3. Mash the condition on facies button
- 4. Mash the "use transformations made in data analysis" button
- 5. Input variogram parameters by facies
- 6. Select SGS for simulation

Betrophysical Modeling with 'Geomod4/HRNG	? ×									
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Compare Phi models for Krider using Gmod3 variograms



Geomod 4, Flower & Newby area, same 30/25/7 as in Geomod3





Krider Geomod4 with GM3 variograms



Layer 5, geomod4 30/25/7

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Krider Geomod4, F9 only, with GM3 variograms





Krider phi Gmod4 (new variograms)







Krider, Geomd 3



Flower & Newby area





Krider phi Gmod4





Krider Geomd4 phi, all facies

Krider Geomd4 phi, layer 5

Krider F9



Krider Geomod4 phi, F9 only layer 5



Krider Geomod4 phi, F9 only

Krider Geomod3, F9 only



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Krider Geomd3 phi, F9 only

Krider Geomd3 phi, F9 only layer 5
Krider, Geomd 3



Krider Geomod3 phi, layer 5

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Krider Geomod3 phi, all facies

Winfield Phi distribution





all

F9 only

Potential error introduced in volumetric calculations by missed lithofacies prediction

- 1. Porosity corrections are a function of lithofacies
- Porosity may increase or decrease when error in lithofacies prediction is made
- If/when error is known, modifications in porosity may be appropriate
- 4. In Geomod4, F9 is estimated to be over represented in Krider by 7.3% and in Winfield by 12.1%. Probably not enough to make a significant difference. When 3X the Phi difference was subtracted from the Winfield F9 there was a change of <3% in OGIP</p>

LithCode	Gmod4	Gmod3	Comments	% Change (at 18%)
			moderately lower	
0	0.165	0.180	at high end	-8.4%
1	0.170	0.170	no change	
2	0.170	0.170	no change	
3	0.138	0.138	no change	
4 /	0.138	0.138	no change	
5	0.181	0.177	slightly higher	1.9%
6	0.198	0.192	slightly higher	3.5%
7	0.181	0.177	lightly higher	1.9%
8	0.181	0.177	slightly higher	1.9%
9	0.198	0.192	slightly higher	3.5%
10	0.165	0.165	slightly higher	-0.1%
	Difference	% Change	in volume	
	0.021	12%	Increase in volume	for F7 now F9
	F7-F9			

Winfield example for F9 porosity

- F9 appears to be over represented by ~32% in the model, as well as in earlier steps in the process.
- 2. Training set -25%

Predicted by NNet – 35% (39% high)

Petra grid from N/GR - 30%

PHI_GM4=If(ZID=3, If(F11_GM4XE=9,PHI_GM4-.01 , PHI_GM4), PHI_GM4) Reduced Winfield OGIP by 3%

Step through Dave's workflow for properties

HFWL70 for Hrngtn-Winf





Herington-Krider Sw and Kxy through the Flower-Newby





Sw and FWL



Bottom layer in Odell

Herington

OGIP calc

- 1. Open volume calculation
- 2. Insert FWL contact
- 3. Make Sw= Sw and leave Sg=1-Sw-So, Bg = 5.5286
- 4. Phi and N/G as shown
- 5. Select Grant-Stevens
- 6. Select what to report
- 7. Apply and Run

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· Edit existing case	OGIP_H-W	
Properties ♥ Results	Grid Grid Sciences	straw
Make property V □ □ Bulk volume V □ □ Bulk volume V □ □ Net volume V □ □ Pore volume V □ □ Pore volume V □ □ STOIP V □ 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Make volume height map	Make spreadbaetreport Debilded user opported Verbinnetics screated to explore the specific and Academic scale also be created at enry time after the colociden is done from the Results explorer tab Results to all selected cases will be reported.

H-Kr-O OGIP Flower-Newby area



Workflow work



Ran this from original location. The decided to copy it into the workflow for the zone

More building workflow



Added a working volume calculator and then copied to all other models

Go back to all workflows that are not an object and set up..for each zone

More Building workflows – Change ZID for 3D grids below Hrntn-Winf



Winf-Ftrly Ftrly-A1sh A1sh-B2LM B2LM-B4LM B4LM-Dsh ZID=If(ZID>0, ZID+2, ZID) ZID=If(ZID>1, ZID+5, ZID) ZID=If(ZID>2, ZID+7, ZID) ZID=If(ZID>3, ZID+11, ZID) ZID=If(ZID>4, ZID+14, ZID)

Winf-Ftrly, before



Winf-Ftrly, after



Other tips

Many of the operations, especially the calculators need to be run interactively before the next can be executed. The next step relies on manually inputting the newly created variable. For example,

Sw that goes in the Volumetrics has to be generated before it can be inserted.



Inserting Text comments and Free memory



Clear Sw property in dummy zones

Insert after the property calculators, before volumetric calculations Hrngtn-Winf SW=If(ZID>2, 1, SW)

Winf-Ftrly	SW=If(ZID<3, 1, SW) SW=If(ZID>6, 1, SW)
Ftrly-A1sh	SW=If(ZID<7, 1, SW) SW=If(ZID>9, 1, SW)
A1sh-B2LM	SW=If(ZID<10, 1, SW) SW=If(ZID>14, 1, SW)
B2LM-B4LM	SW=If(ZID<15, 1, SW) SW=If(ZID>18, 1, SW)
B4LM-Dsh	SW=If(ZID<19, 1, SW)

Herington-Krider-Odell core ties



Flower I -direction (S-N)



Flower J-direction (W-E)



Shrimplin I-direction (S-N)



Shrimplin J-direction (W-E)

Herington-Krider-Odell and Winfield-Gage-Towanda-B/Towanda core ties



Hoobler I -direction (S-N)



Hoobler I -direction (S-N)



Hoobler J-direction (W-E)



Hoobler J-direction (W-E)

More Hoobler FtRiley-Matfield-Wreford



Hoobler I -direction (S-N)



Hoobler J-direction (W-E)

Flower Winfield-B/Twnd & FtRly-Wreford





Flower I-direction (S-N)

Flower I-direction (S-N)

Newby area S-N (I-direction) Council Grove

A1SH-B2LM



B2LM-B4LM





B4LM-DSH



Combine facies models p 14



Hoobler combined Facies



Hoobler combined Porosity



Hoobler HaFWL



FWL ~ -30 feet

Volumetrics

🔁 Workfle	ow Editor for	"Volume	es"	_ 🗆 🔀
📑 Name:	Volumes	Description:		10
Author:	Dave Hamilton	5/ 1/2006		~
Available function	ns: 🥐		Volume Calculation : Create case and run volume calculation. The command With 3D Grid must be run prior to the process commands in order to specify the grid to r processes on. It is not automatically using the active grid. Double click the process to see its Settings o	un the dialog. Use the
Arithmetic General Fu General Fu General Fu Angle Fum Angle Fum Calculation Get result of Convert Po	Operations unctions ctions Where Where urface Operations Functions Operations erations Operations perations ns of Calculations points/Polygons/Surfaces		Calculate volumes Point to the small 3D Grid containing all 24 zones (this should be a copy in case you With 3D-Grid Merged Geome With Copy: Copy Properties: Object is NOT selected Volume Calculation Object is NOT selected	
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Volumetrics

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Volumetrics

😇 Volume Calculation with 'Geomod4/Merge 📃 🗖	
🝅 🔿 Create new case	
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Grid Merged Geomod4[U]	-
🔠 Properties 🏾 🍞 Results 🛛 🧏 Formulas	
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Hydrocarbon Interval(s) Oil	
Contacts are defined in the "Make Contacts" process. Select the relevant one(s) (if any) and drop in.	
Note that the illustration directly reflects which contact you are actually specifying.	
contact	
should be customised on the property templates before volumetrics is run. These units will be used for all Volumetric and simulation results.	
🖌 Apply 🖌 Ok 🗶 Cant	;el

Hoobler Vol Reports

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B Part of Geomod4 architecture	29	Case	HCPV gas[*10^6 RB]	STOIIP (in gas)[*10^6 STB]	GIIP (in gas)[*10^6 MSCF]	Folder
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b Combine-Facies	37	Zone ODELL	5		0 1	
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Hoobler HCH (OGIP) map



Hoobler OGIP cube



Hoobler small 3X4 model



Hoobler Model Area Cum. Gas

API 🔫	OPER -	Hooble rAre a 🔫	WE –	SPUD_]	PROD -	SYM 🔫	SI 🛨	T (🛨	RA 🔫	YYYMM 🔫	CUM_GAS 🔫
35139015660000	REPUBLIC NAT	Γ DANIELS	1	1/1/1946	CHSE	GAS	17	6N	17E	200504	8,356,932
35139015670000	REPUBLIC NAT	Γ CUSTER	1	1/1/1947	CHSE	GAS	18	6N	17E	200504	6,020,519
35139015680000	REPUBLIC NAT	TOWNER	1	1/1/1946	CHSE	GAS	19	6N	17E	200504	4,532,704
35139015690000	REPUBLIC NAT	Г HOBBLER	1	1/1/1947	CHSE	GAS	20	6N	17E	200504	4,426,176
35139015700000	REPUBLIC NAT	Г WILS ON	2	1/1/1946	CHSE	GAS	21	6N	17E	200504	4,138,028
35139015740000	REPUBLIC NAT	Г BLACKMER-28	3	1/1/1947	CHSE	GAS	28	6N	17E	200504	3,731,024
35139015750000	REPUBLIC NA	Г WILLIAMS	1	1/1/1947	CHSE	GAS	29	6N	17E	200504	4,021,503
35139017500000	REPUBLIC NAT	Γ HAMP S TON	1	3/19/1940	CHSE	GAS	13	6N	16E	200504	9,230,934
35139017550000	REPUBLIC NA	ΓEBERSOLE	1	5/21/1940	CHSE	GAS	24	6N	16E	198205	5,229,040
35139017560000	REPUBLIC NA	Г BLACKMER-25	2	7/25/1946	CHSE	GAS	25	6N	16E	200504	6,321,500
35139017610000	REPUBLIC NA	SCHMELZEL	1	10/26/1946	CHSE	GAS	16	6N	17E	200504	7,345,449
35139017660000	REPUBLIC NA	Г MULLER	2	8/22/1946	CHSE	GAS	30	6N	17E	200504	5,539,541
35139216580000	MOBILOILCOR	EBRSOL/RNG 92	2	5/29/1982	CHSE	GAS	24	6N	16E	199207	271,689
35139221040000	MOBILOILCOR	CUSTER UNIT	2	5/17/1986	CGRV	GAS	18	6N	17E	200207	507,472
35139224410000	MOBILOILCOR	EBERSOLE UNI	3	9/11/1992	CHSE	GAS	24	6N	16E	200504	903,085
35139230470000	ANADAR KO PI	E HJ V MCADAM`B	1	7/16/1999	CGRV	GAS	28	6N	17E	200206	604,068
35139230590000	ANADAR KO PI	E H J V WILS ON `A	1	9/21/1999	CGRV	GAS	28	6N	17E	200205	191,836
35139230620000	ANADAR KO PI	E H J V BRIGGEMA	1	9/16/1999	CGRV	GAS	21	6N	17E	200205	287,162
35139230710000	ANADAR KO PI	E HJVJAVUREK`A	1	11/9/1999	CGRV	GAS	21	6N	17E	200205	212,813
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Modify FWL in steps

🛚 Calculator for Properties 'Properties'									
→ HFWL70z=HFWL70z+100									
From file: Run									
Select property variable: Attach new to template:									
Ф H_W_porosity ▲ 🎽 General 👻									
Φ W_F_porosity Φ F_A_porosity Use filter:									
Φ A_B2_porosity Φ B2_B4_porosity							✓ Geometry		
Φ B4_D_porosity Φ Porosity [U]							ENTER		
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OGIP in HCH



Hoobler Change in OGIP with 100' change in FWL

	FWL70z			FWL70z -100		
	HCPV	GIIP		HCPV	GIIP	
	*10^6 RB	0^6 MSCF		*10^6 RB	0^6 MSCF	
HRNGTN	26	5		22	4	
KRIDER	171	31		161	29	
ODELL	0	0		0	0	
WINF	135	24		123	22	
GAGE	16	3		10	2	
TWND	264	48		222	40	
B/TWND	26	5		17	3	
FTRLY	232	42		133	24	
MATFIEL	1	0		0	0	
WREFOR	59	11		0	0	
A1_SH	0	0		0	0	
A1_LM	24	4	173	0	0	124
Upscale 3X4 section Hoobler simulation model

Hoobler simulation coordinates





Make copy of part of small model to be simulated and rename it Hoobler fine grid

Settings for 'Mer	ged Geomod4 ? 🔀
Info Statistics Operations O Copy Part of the 3D Grid Hint: Copy the 3D grid by the give save a specific part of the 3D grid	n settings. This can be used in order to I. It will also copy the properties.
 Use Cell Index Limits: Use segment filter Use zone filter Copy 3D Grid 	Cell index limits Min Max Min Max I (77): 25 1 J (58): 18 42 42 Get from filter settings
Mash copy 3D grid	a
	✔ Apply ✔ OK 🗶 Cancel



And delete properties not needed

Make a copy for the coarse grid and rename it Hoobler coarse grid

- 1. Delete all the properties
- 2. Make Horizons (new Hrngtn Horizon)

2	🖥 Make Horizons with 'Geomod4/Hoobler coarse grid[U]' 🛛 🛛 🔀
	Horizons Settings Faults Segments Wells Uncertainty Info
	Some hints for the table: Horizon Type: 2 Conform To: 2 Use Faults Lines: 2 Input 2
	Index Horizon Name Color Calculat e Horizon Type Conform to Another Horizon Status Smooth Iteration s Use Fault Lines Well Tops Input #1
	1 @ HRNGTN
	🖌 Apply 🖌 OK 🕺 Cancel

Make new zones and re-layer to one each

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-	U+ Use mi	inimum c	ell thickness:	Ji.	🐨 🗹 Inclu				urt From:	Гор	
	Settings for eacl	h Zone			@		-			0	
2	Zone Divisi	ion: 🖤	Reference	ce Surface:	W Restor	re Er	oded: 🥨	Resto	re Base: (3	▲ ▲
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	GAGE		Ves	Proportiona	Number of lay	1		T Yes	T Yes	<u></u> ∦ New	
	TWND		Ves	Proportiona	Number of lay	1		Yes	☐ Yes	<u> </u>	
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			Ves	Proportiona	Number of lay	- 1		E Yes	E Yes	SK New	
	A1_01		Ves	Proportiona	Number of lay	1		E Yes	E Yes	> New	
	B1 SH	— ,	Ves	Proportiona	Number of lay	1		E Yes	E Yes	→ New	
	B1 LM	— ,	Ves	Proportiona	Number of lay	1		T Yes	T Yes		
	B2 SH	<u> </u>	Ves	Proportiona	Number of lay	1		T Yes	☐ Yes	<u>i ∦</u> New	
Ĩ	B2_LM	-	Ves	Proportiona	Number of lay	1		T Yes	T Yes	<u> </u>	
	B3_SH		Ves	Proportiona	Number of lay	1		T Yes	T Yes	<u></u> ∦ New	
	B3_LM	•	Ves	Proportiona	Number of lay	1		T Yes	T Yes	∦New	
	B4_SH	-	Ves	Proportiona	Number of lay	1		T Yes	T Yes	∦New	
	B4_LM	-	Ves	Proportiona	Number of lay	1		T Yes	T Yes	∦New	
	B5_SH	-	Ves Yes	Proportiona	Number of lay	1		T Yes	T Yes	<u></u> ∦ New	
8	B5_LM	•	Ves	Proportiona	Number of lay	1		T Yes	T Yes	<u></u> ∦ New	
	C_SH		Ves	Proportiona	Number of lay	1		T Yes	☐ Yes	<u></u> ∦ New	
	C_LM	•	Yes	Proportiona	Number of lay	1		Yes	I Yes	<u></u> ∦ New	
										1	
									V Aj	pply 🗸	OK XCancel

Check after creating zone index



Scale up properties from Fine Grid to Coarse Grid: Map fine to coarse grizzone Mapping with 'Geomod4/Hoobler c... ?X

- 1. Activate coarse grid
- 2. Link the fine grid to the coarse grid. Open "Scale UP Zones" in Upscaling. OK.
- 3. Map the zones from one model to the other. Open Zone Mapping and check to ensure it is correct. Should be. OK.

Scale Up Zones/Select	Grid with 'Geomod4/Hoobler coarse grid ?X
Scale up Zones/Select Grid	
G Scale up zones	Coarse grid: (active) Hoobler coarse grid[U]
 Leave zonation in the coarse grid unchanged 	Fine grid: Moobler fine grid[U]
Your grid has alre You must here se the Zone Mapping	tady been created with the correct (upscaled) zone division. lect which fine grid you want your upscaled grid attached to in g and Property Upscaling.
	🖌 Apply 🖌 OK 🗶 Cancel

Zone Mapping By grid geometry layering By grid geometry layering By grid geometry layering By layering history in prev. processes Coarse grid: Hobobler coarse grid[U] Specify layers in the coarse (upscaled) grid taken from the fine (geological) grid: Inside Zon Layer N Top Layer Base Laye HRNGTN 1 9 KRIDER 2 10 21 22 00ELL 3 22 25 WINF 4 26 36 GAGE 5 9 KRIDER 21 0 0 0 11 9 % FWND 6 43 0 006 8 61 74/L 8 8 97 9 75 9 75 9 87 8 91 8 11 12 92 8 13 9 14									
Auto generate By unique horizon names Image: Specify layering By grid geometry layering By layering history in prev. processes Coarse grid: (active) Hoobler coarse grid[U] Specify layers in the coarse (upscaled) grid taken from the fine (geological) grid: Image: Specify layers in the coarse (upscaled) grid taken from the fine (geological) grid: Inside Zon Layer N Top Layer Base Laye Image: Specify layers in the coarse (upscaled) grid taken from the fine (geological) grid: Inside Zon Layer N Top Layer Base Laye Image: Specify layers in the coarse (upscaled) grid taken from the fine (geological) grid: Inside Zon Layer N Top Layer Base Laye Image: Specify layers in the coarse (upscaled) grid taken from the fine (geological) grid: Inside Zon Layer N Top Layer Base Laye Image: Specify layers in the fine (geological) grid: Inside Zon I Layer I 10 80 Bas_IM 18 Bas I 17 126 Bas I 17 126 Bas I 18 113 Bas I 17 126 Bas I 18 113 Bas I 19 132 Bas I 19	Zone Mapping								
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Coarse grid: Image: Hoobler coarse grid[U] Specify layers in the coarse (upscaled) grid taken from the fine (geological) grid: Inside Zon Layer N Top Layer Base Laye HRNGTN 1 9 KRIDER 2 10 21 22 WiNF 4 22 25 WINF 4 32 22 WINF 4 32 32 33 34 34 11 35 37 41 10 37 37 38 31 34 14 35 31 36 36 37.83 31 38 34 41.24 136 39 33 39	general	ete C B	v laverina hi	story in prev	0100000000				
Coarse grid:			yiayeningin	story in prev	. processes				
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Inside Zon Layer N Top Layer Base Laye Inside Zon Layer N Top Layer Base Laye HRNOTN 1 9 KRIDER 2 10 21 ODELL 3 22 25 WNF 4 26 36 GAGE 5 37 42 TWND 6 43 56 BTWND 7 57 60 FIFILY 8 61 74 MATFIELD 9 75 79 WREFOR 10 80 87 A1_SH 11 88 91 A1_LM 12 92 105 B1_SH 13 106 109 B1_LM 14 110 117 B2_SH 15 118 119 B2_SH 11 126 123 B4_SH 19 132 133 B4_LM 20 134 137 B5_SH 21 138 139 C_SH 23 150 155 <t< td=""><td>(active) Specify lavers in</td><td>, the coar</td><td>eo (unecalo</td><td>d) arid takon</td><td>from the</td><td><u></u></td><td></td></t<>	(active) Specify lavers in	, the coar	eo (unecalo	d) arid takon	from the	<u></u>			
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TWND 6 43 56 B/TWND 7 57 60 FTRLY 8 61 74 MATFIELD 9 75 79 WREFOR 10 80 87 A1_SH 11 88 91 A1_LM 12 92 105 B1_SH 13 106 109 B1_LM 14 110 117 B2_SH 15 118 119 B3_SH 17 126 128 B3_LM 18 129 131 B4_SH 19 132 133 B4_SH 19 132 133 B5_LM 22 140 149 C_SH 23 150 155 C_LM 24 156 169 Fine grid: 2one Name Top Layer Base Laye Zone KRIDER 10 21 Zone WINF 26 36 Zone WINF 26 36 Zone WINF	GAGE	5	37	42					
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B1_SH 13 106 109 B1_LM 14 110 117 B2_SH 15 118 119 B2_LM 16 120 125 B3_SH 17 126 128 B3_LM 18 129 131 B4_SH 19 132 133 B5_SH 21 138 139 B5_SH 21 138 139 B5_SH 21 133 150 C_SH 23 150 155 C_LM 24 156 169 Fine grid: Zones in the fine (geological) grid: (Only present for reference) Zone KRIDER 10 21 Zone HRNGTN 1 9 Zone KRIDER 10 21 Zone GAGE 37 42 Zone BAGE 37 42 Zone BAGE 37 42 Zone BATWND 57 60 Zone FTRLY 61 74	A1_LM	12	92	105					
B1_LM 14 110 117 B2_SH 15 118 119 B2_LM 16 120 125 B3_SH 17 126 128 B3_LM 18 129 131 B4_SH 19 132 133 B5_SH 21 138 139 B5_SH 23 150 155 C_SH 23 150 155 C_LM 24 156 169 Zones in the fine (geological) grid: (Only present for reference) 20ne HRNGTN 1 Zone KRIDER 10 21 20ne KRIDER 10 Zone CAGE 37 42 20ne GAGE 37 Zone BAGE 37 42 20ne FTRLY 61 74	B1_SH	13	106	109					
B2_SH 15 118 119 B2_LM 16 120 125 B3_SH 17 126 128 B3_LM 18 129 131 B4_SH 19 132 133 B5_SH 21 138 137 B5_SH 21 138 139 B5_SH 21 138 139 B5_SH 21 138 139 B5_SH 21 138 139 C_SH 23 150 155 C_LM 24 156 169 Fine grid: 20nes in the fine (geological) grid: (Only present for reference) Zone KRIDER 10 21 Zone HRNGTN 1 9 Zone ODELL 22 25 Zone WINF 26 36 Zone GAGE 37 42 Zone BATWND 57 60 Zone FTRLY 61 74	B1_LM	14	110	117					
B2_LM 16 120 125 B3_SH 17 126 128 B3_LM 18 129 131 B4_SH 19 132 133 B5_SH 21 134 137 B5_SH 21 138 139 B5_LM 22 140 149 C_SH 23 150 155 C_LM 24 156 169 Fine grid: 20ne Sin the fine (geological) grid: (Only present for reference) Zone Name Top Layer Base Laye Zone KRIDER 10 21 Zone ODELL 22 25 Zone ODELL 22 25 Zone GAGE 37 42 Zone BARGE 37 42 Zone BARWINF 26 36 Zone BARWINF 26 36 Zone BARWINF 26 36 Zone BARWINF 26 36 Zone BARWIND 57 60 Zone FTRLY 61 74	B2_SH	15	118	119					
B3_SH 17 126 128 B3_LM 18 129 131 B4_SH 19 132 133 B4_LM 20 134 137 B5_SH 21 138 139 B5_LM 22 140 149 C_SH 23 150 155 C_LM 24 156 169 Fine grid: 100 Hobler fine grid[U] Zones in the fine (geological) grid: (Only present for reference) Zone Name Top Layer Base Laye 1 Zone HRNGTN 1 9 Zone HRNGTN 1 9 Zone ODELL 22 25 Zone ODELL 22 25 Zone GAGE 37 42 Zone BARGE 37 42 Zone BARGE 37 42 Zone BARGE 37 42 Zone FTRLY 61 74	B2_LM	16	120	125					
B3_LM 18 129 131 B4_SH 19 132 133 B4_LM 20 134 137 B5_SH 21 138 139 B5_LM 22 140 149 C_SH 23 150 155 C_LM 24 156 169 Fine grid: 139 Hoobler fine grid[U] Zones in the fine (geological) grid: (Only present for reference) Image: Cone HRNGTN 1 Zone KRIDER 10 21 22 Zone ODELL 22 25 25 Zone GAGE 37 42 Zone BARE 356 36 Zone BARE 37 42 Zone FTRLY 61 74	B3_SH	17	126	128					
B4_SH 19 132 133 B4_LM 20 134 137 B5_SH 21 138 139 B5_LM 22 140 149 C_SH 23 150 156 C_LM 24 156 169 Fine grid: 23 150 156 C_LM 24 156 169 Zones in the fine (geological) grid: (Only present for reference) Image: Cone HRNGTN 1 Zone HRNGTN 1 9 Image: Cone KRIDER 10 21 Zone KRIDER 10 21 25 Image: Cone GAGE 37 42 Zone WINF 26 36 Image: Cone GAGE 37 42 Zone BATWND 43 56 Image: Cone GAGE 17 4 Zone FTRLY 61 74 Image: Cone GAGE 157 Image: Cone GAGE 17	🙈 B3_LM	18	129	131					
B4_LM 20 134 137 B5_SH 21 138 139 B5_LM 22 140 149 C_SH 23 150 155 C_LM 24 156 169 Fine grid: 100 Hoobler fine grid[U] Zones in the fine (geological) grid: (Only present for reference) Zone Name Top Layer Base Laye Image: Colspan="2">Image: Colspan="2">Top Layer Base Laye Image: Colspan= Colspan= 200 Image: Colspan="2">Image: Colspan="2">Image: Colspan="2">Image: Colspan="2">Image: Colspan="2">Image: Colspan="2" Top Layer Base Laye Image: Colspan= 200 Image: Colspan="2" Top Layer Base Laye Image: Colspan="2" Top Layer Base Laye Image: Colspan="2" Top Layer Base Laye Image: Colspan= 200 Image: Colspan="2" Top Layer Base Laye Image: Colspan="2" Top Layer Base Laye Image: Colspan="2" Top Layer Base Laye Image: Colspan= 200 Image: Colspan="2" Top Layer Base Laye Image: Colspan="2" Top Layer Base Laye Image: Colspan="2" Top Layer Base Laye	🙈 B4_SH	19	132	133					
B5_SH 21 138 139 B5_LM 22 140 149 C_SH 23 150 155 C_LM 24 156 169 Fine grid: 100 149 149 Zones in the fine (geological) grid: (Only present for reference) Image: Cone Name Top Layer Base Laye Zone HRNGTN 1 9 20ne KRIDER 10 21 Zone ODELL 22 25 25 20ne GAGE 37 42 Zone GAGE 37 42 20ne B/TWND 43 56 Zone FTRLY 61 74 V	🙈 B4_LM	20	134	137					
B5_LM 22 140 149 C_SH 23 150 155 C_LM 24 156 169 Fine grid: 100 Hoobler fine grid[U] 2000 Sin the fine (geological) grid: (Only present for reference) Zone Name Top Layer Base Laye 1 Zone KRIDER 10 21 Zone ODELL 22 25 Zone GAGE 37 42 Zone B/TWND 43 56 Zone FTRLY 61 74	B5_SH	21	138	139					
C_SH 23 150 155 C_LM 24 156 169 Fine grid: 156 169 Zones in the fine (geological) grid: (Only present for reference) Zone Name Top Layer Base Laye Zone KRIDER 10 21 Zone ODELL 22 25 Zone GAGE 37 42 Zone B/TWND 43 56 Zone FTRLY 61 74 ✓	🙈 B5_LM	22	140	149					
C_LM 24 156 169 Fine grid: Image: Hoobler fine grid[U] Zones in the fine (geological) grid: (Only present for reference) Zone Name Top Layer Base Laye Zone HRNGTN 1 9 Zone KRIDER 10 21 Zone ODELL 22 25 Zone GAGE 37 42 Zone TWND 43 56 Zone FTRLY 61 74	C_SH	23	150	155					
Zone sin the fine (geological) grid: (Only present for reference) Zone Name Top Layer Base Laye Zone HRNGTN 1 9 Zone KRIDER 10 21 Zone ODELL 22 25 Zone GAGE 37 42 Zone B/TWND 43 56 Zone FTRLY 61 74	C_LM	24	156	169					
Fine grid: Image: Hoobler fine grid[U] Zones in the fine (geological) grid: (Only present for reference) Zone Name Top Layer Base Laye Zone HRNGTN 1 Zone KRIDER 10 Zone ODELL 22 Zone GAGE 37 Zone B/TWND 43 Sone B/TWND 57 Cone FTRLY 61	J								
Zones in the fine (geological) grid: (Only present for reference) Zone Name Top Layer Base Laye Zone HRNGTN 1 9 Zone KRIDER 10 21 Zone ODELL 22 25 Zone WINF 26 36 Zone GAGE 37 42 Zone B/TWND 43 56 Zone FTRLY 61	First sold.	M Hor	bler fine ari	-0.0					
Zone sin the time (geological) gind: (Only present for reference) Zone Name Top Layer Base Laye Zone HRNGTN 1 2 Zone KRIDER 10 Zone KRIDER 10 Zone KDERL 22 Zone GAGE 37 Zone B/TWND 43 Sone B/TWND 57 Cone FTRLY 61	Fine grid:		bier inte grit						
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Zone KRIDER 10 21 Zone ODELL 22 25 Zone WINF 26 36 Zone GAGE 37 42 Zone TWND 43 56 Zone B/TWND 57 60 Zone FTRLY 61 74									
Zone ODELL 22 25 Zone WINF 26 36 Zone GAGE 37 42 Zone TWND 43 56 Zone B/TWND 57 60 Zone FTRLY 61 74 ✓	Zone KRIDER 10 21						=		
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Zone TWND 37 42 Zone TWND 43 56 Zone B/TWND 57 60 Zone FTRLY 61 74		-	20						
Zone F/TWND 43 50 Zone B/TWND 57 60 Zone FTRLY 61 74	Zone GAG	-	31	42					
Zone FTRLY 61 74	Zone B/TWND 43 56								
	Zone B/TW	V	61						
	2010 FIRL	Cone FIRLY 61 74							
Apply M OK Cancel									
					🖝 дрру	- UK	Cancel		

Scale up properties from Fine Grid to Coarse Grid: Porosity

- 1. Activate "Scale up Properties" and select porosity.
- 2. Make settings as in dialog box to right



Scale Up Properties	? 🗙
Execute	
Layered sampling Upscale by matching geometry Downscale by matching geometry Average Tensor Accuracy Simplified (fast) C Exect interest	Image: Second state of the second
Average Method Average Method Arithmetic Veighting Select properties from the fine (geologic Properties H_W_facies W E facies	al grid):
F_A_facies F_A_facies A_B2_facies B2_B4_facies B4_D_facies main_zone_index Facies [U] ✓ Use volume weighting	 ✓ ✓
	🗸 Apply 🖌 OK 🗶 Cancel

Scale up properties from Fine Grid to Coarse Grid: Perm XY

- 1. Activate "Scale up Properties" and select Kxy.
- 2. Make settings as in dialog box to right



Scale Up Properties	? 🔀
Execute	✓ In Coarse Grid ✓ In Fine Grid Ine grid[U] Settings ✓ Ensure value in all cells ✓ Use property filter
Average Tensor Algorithm PSK-solver Finite difference Full tensor Result format XYZ permeabilities IJK permeabilities IJK permeabilities Add skin zone Add skin zone Add titional cells Min no cells Number of cells I J: K: Velocity average skin cells Let the Skin go outside the zone mapping 	Boundary Condition ○ Open ○ Closed ● Closed K ② Input properties K; Kx perm ♥ ② K; Kx perm ♥ ② K; Kx perm ♥ ② K; Kx perm ♥ ② 0 ● H_W_porosity ♥ ③ Upscaled № ♥ Porosity ♥ ② Upscaled ● ● Porosity ♥ ③
	🖌 Apply 🖌 OK 🗶 Cancel

Scale up properties from Fine Grid to Coarse Grid: Perm Z

- 1. Activate "Scale up Properties" and select Kz.
- 2. Make settings as in dialog box to right



Scale Up Properties	· · · · · · · · · · · · · · · · · · ·
Execute	
Overwrite existing property: Zones Property to upscale: k ¹ / ₂ Permeabil	In Coarse Grid
The fine grid:	ne grid[U]
Name of new property: PermeabilityZ Sampling method Layered sampling Upscale by matching geometry Downscale by matching geometry	Settings I▼ Ensure value in all cells I Use property filter IIII (2)
Average Tensor Algorithm PSK-solver Finite difference Full tensor Full tensor Full tensor Image: Comparison of the comparison of	Boundary Condition ○ Open ○ Closed ● Closed K ② Input properties KI Kx perm ② KJ Kx perm ② KK Kx perm ② KK Kx perm ② KK Q Vpscaled %6 Vpscaled Φ Φ Porosity ② Vpscaled Φ Φ Porosity ②
	🖌 Apply 🖌 OK 🗶 Cancel

Scale up properties from Fine Grid to Coarse Grid: Sw

- 1. Activate "Scale up Properties" and select Sw.
- 2. Make settings as in dialog box to right, phi weighted



Scale Up Properties	? 🗙
Execute	
Overwrite existing property:	Zones In Coarse Grid
Property to upscale:	Sw SW In Fine Grid
The fine grid:	Hoobler fine grid[U]
Name of new property:	SW
Sampling method	Settings
Layered sampling	Ensure value in all cells
 Upscale by matching geometry 	🦉 🦳 Use property filter 🛗 🔇
Ownscale by matching geometry	3
Average Tensor	
Accuracy	
Simplified (fast) C Exact interse	ction (slow)
Average Method	
Weighting	
Select properties from the fine (geologic	cal grid):
	▲
Φ□ A_B2_porosity Φ□ B2 B4 porosity	
$\Phi \square B4_D_porosity$	
⊕ Porosity [U] TF □ UFWU 70-	
phi_pct	Hint: The algorithm will weight with the product
k‡⊡ PermeshilitvZ	of all the properties you
S, □ SW	▼ select here.
✓ Use volume weighting	
·····	Apply V OK Cancel

Calculate Rock Type for Relative Perm





🔁 Calcu	lator fo	r Proper	ties 'Pro	opertie	s'			_ 🗆 🗙
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Export properties and grid for simulation (CMG format)

🔁 CMG Export Settii	ngs	? 🗙
Coordinate system in file Local Coordinate System with y-axis downwards. Global Coordinate System (e.g. UTM coordinates).	•	Hint: When using Local Coordinate System, remember that the coordinates will no longer be in a global coordinate system when read back into Petrel or any other program.
Keywords in file Save CORNERS keyword in file Save COORD keyword in file	0 •	Hint: If you want to preserve listric pillars in the exported grid, use the CORNERS keyword.
Origin of cells in Petrel User defined cell origin Set K to max K	V	Hint: It is necessary to know where Petrel's cell (I=0, J=0) and cell (I=max I, J=max J) are located in the xy-plane.
Cell origin at (I=0, J=0, K) Cell origin at (I=0, J=max J, K) Cell origin at (I=max I, J=max J, K) Cell origin at (I=max I, J=0, K)	0000	From this you can determine where to set the cell origin and traversal direction when exporting the grid.
Traverse first along I, then along J Traverse first along J, then along I	•	
Undefined property value	-	X Cancel

Punch all the correct buttons

END