

New Ocean Techniques in Blender

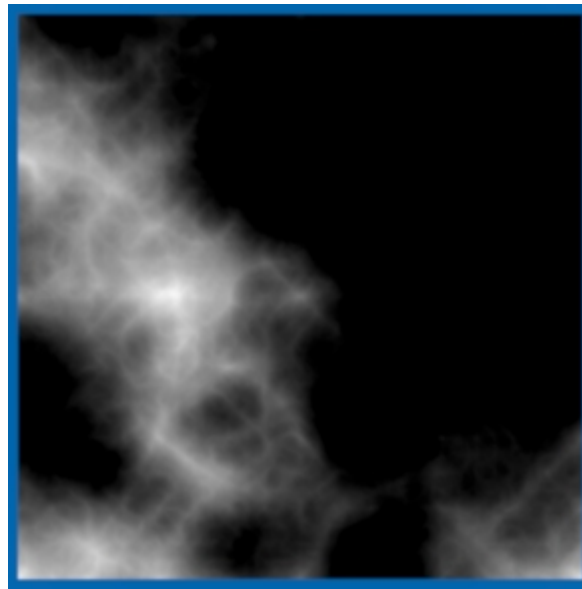
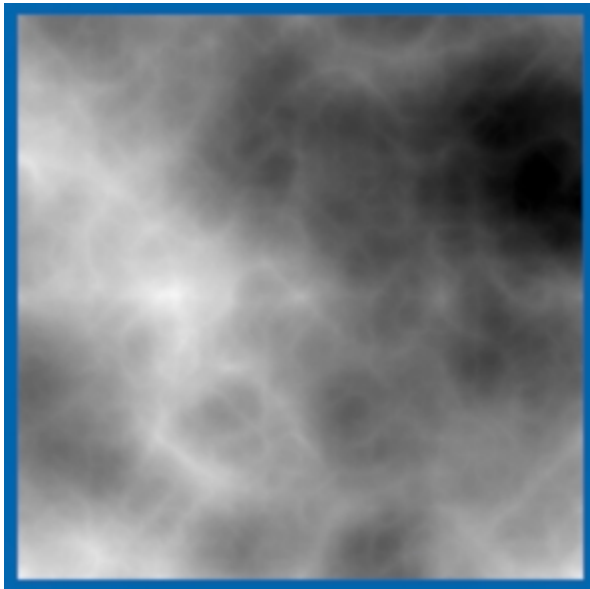
Creating large bodies of water in Blender 2.41 Part 2

By Cog aka Colin Litster

Creating the Crests

When I started my research into ocean simulation I knew I had to find a method of generating high contrast white tops to waves. However, I also knew that there would need to be some randomness in both height and distribution. After all wave crests in a storm are different from a light breeze on calm sea.

Creating with 3D packages often takes one down blind allies. However, I'm a great believer in the notion that nothing is wasted. That's why I keep a journal of my work in Blender. I note down things that happen in case they might come in handy at another time. Whilst creating my dense smoke concept, I needed to play with contrast and brightness of the cloud texture. Now since my displacement map is a cloud texture why not use the same technique to produce a brighter crest to the wave.



Both of these images are the same texture but the one on the right has higher contrast and brightness. If the one on the left is used as a displacement and the high contrast right image as a colour you have instant wave crests.

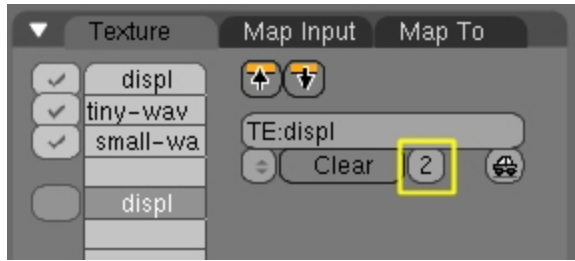
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Copy can save you time

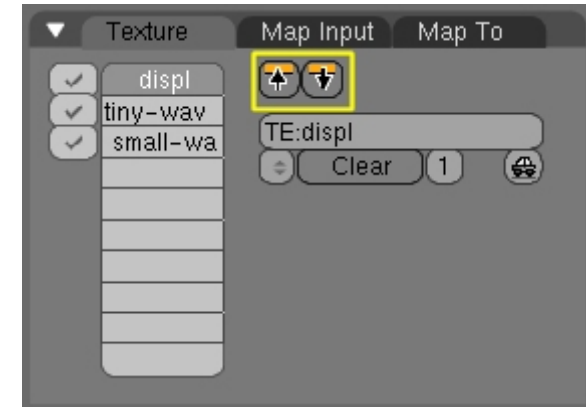
Rather than create a wave texture from scratch we can use the Material copy function in Blender to give a quick head start.

Go to the Materials button (**F5**) and from the Texture tab select the displ texture in slot 0. The 2 arrows highlighted allow you to copy textures to a buffer and paste them back to another texture slot. So with displ texture selected click the up arrow.

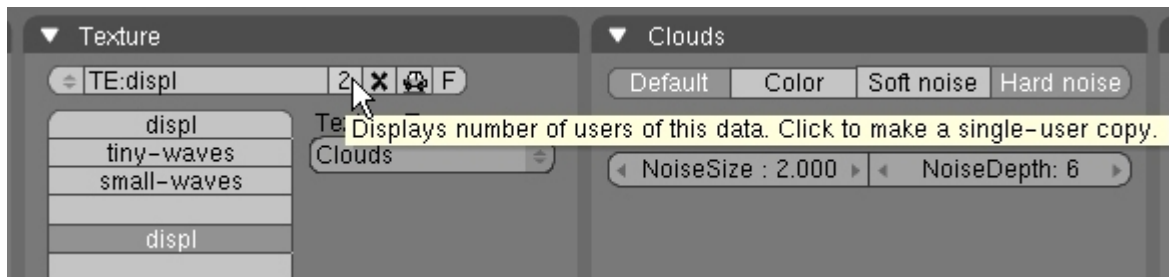
We could move to the next available slot, which is 3, but I want to use that later so move to slot 4 and click the down arrow highlighted in the image to the right.



The number next to the Clear button will show that this texture is now shared twice. This means that all of its settings have been duplicated and any change we make to either of them will affect both.



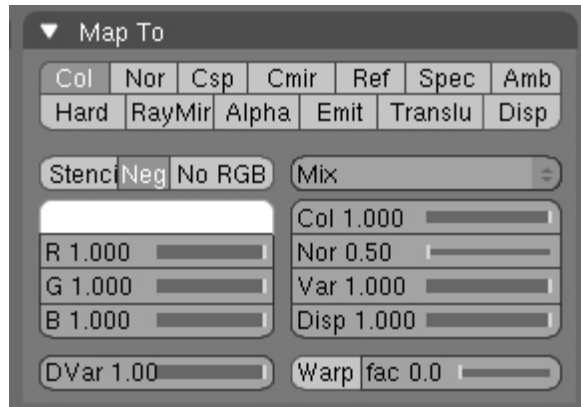
Although we wanted to copy all of the settings to give us the same cloud texture for our crests we now need to modify our crests for contrast and brightness and obviously map it as colour rather than displacement. In other words we need to make it a single user. Unfortunately we cannot change that in the material setting. It is necessary to move to the Texture settings (**F6**)



If you hover the mouse over the display-number-of-users button, in the Texture setting, and **RIGHT-CLICK**. The copied texture will become a single user. You might as well rename it to be more meaningful. How about **crest1**.

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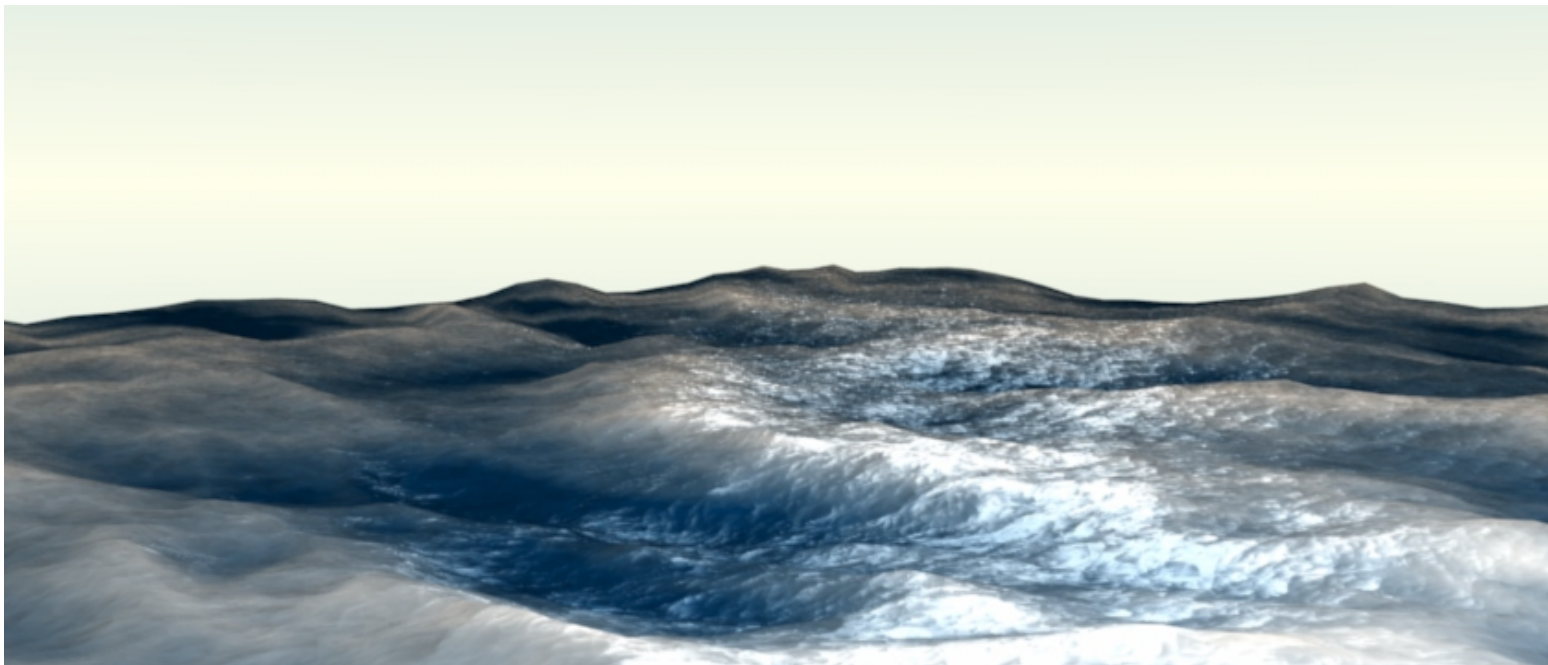
OK switch back to the material button (**F5**) and alter the Map To settings as follows:-



Set to **Col** only and **Neg** and **Mix**. Also notice that the R, G, B sliders have been set to 1.0 which is the highest setting and producing a white colour.

Try a Render to see what you get.

SAVE YOUR WORK



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Adding a Second Crest Texture

Although its beginning to look OK it can be further improved to help increase the contrast and 'punch' of the crests. I have noticed that even in dark weather the contrast between the wave and crests should be quite high. If not, crests will tend to look dull and grey almost plastic. The 3D designer's nightmare.

We need to copy our crest1 texture, make it a single user, and then modify some of its settings.

Exercise

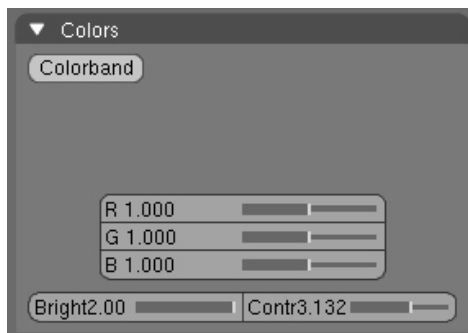
You didn't think you could get away with doing no work did you? So using the techniques learned on page 22

Copy the crest1 texture to the next texture slot down, 4.

Make it a single user.

Rename it to crest2

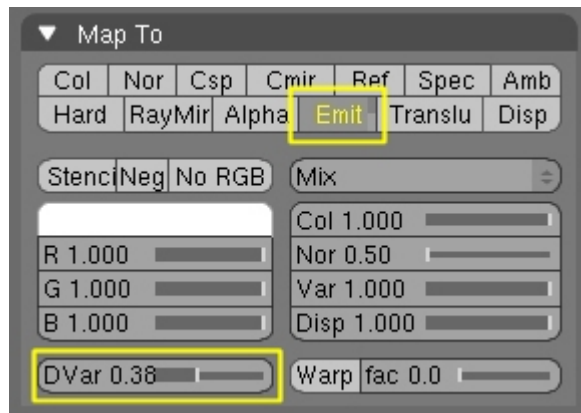
Then make the following changes first in its texture settings:-



The main change here is that the **Bright**(ness) has been increased to **2.00** and the **Contr**(ast) to **3.132**

Now switch to Material (**F5**) and change the **Map To** using these new settings:-

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AS you can see the map type has been changed to **Emit**.

Neg has been turned off and the **Dvar** value set down to **0.38**

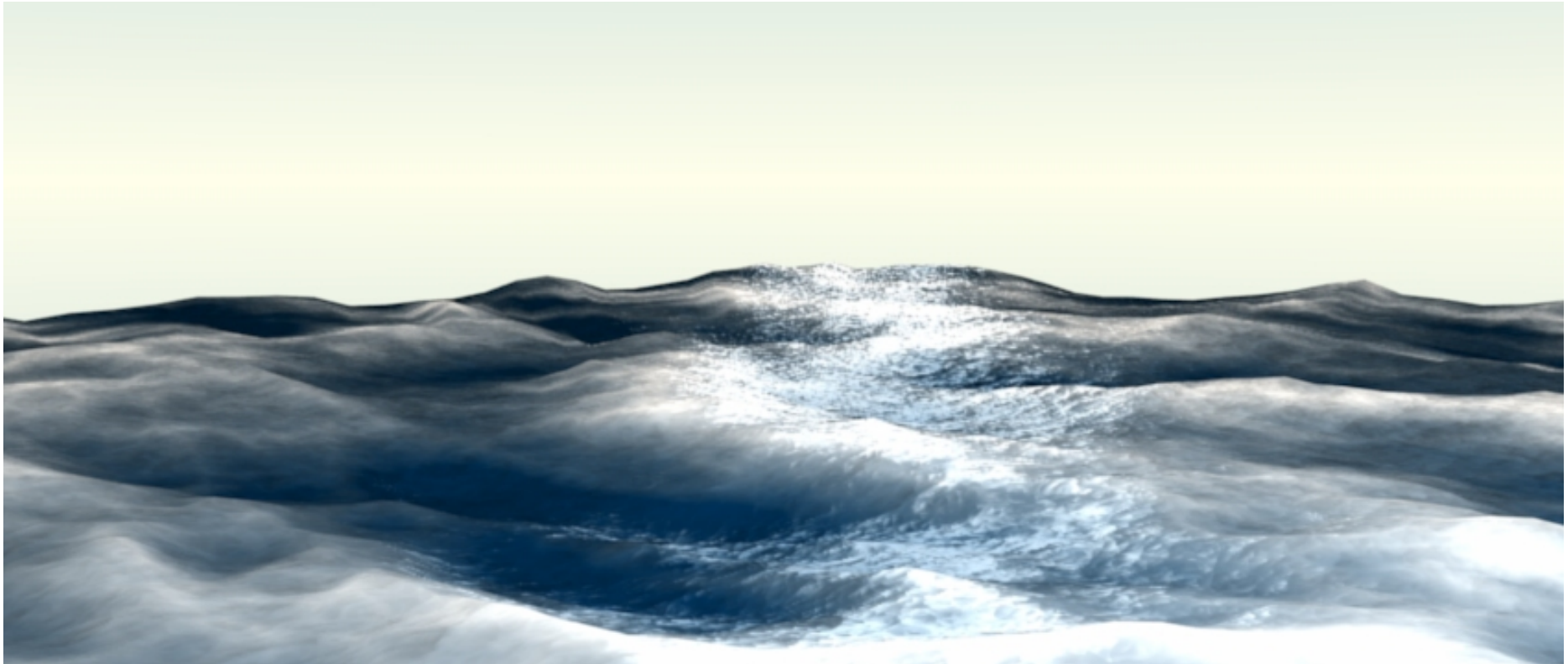
(Dvar stands for Default Value the texture uses to Mix with (not RGB). If anyone knows what that is meant to mean please tell everyone. Particularly the devisers of those help tags in Blender.

I call it the Depth Variable and by increasing, or turning down, this value the mix of the texture to the material mapto is increased or decreased accordingly.

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Render at this point.

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The crests now have a little more depth and contrast. Of course they are also just about on every wave top as well but we can do something about that later.

The second crest texture is used as an emit. This means that the texture gives the impression of emitting its own light. You will find that any light in your scene will also increase the emit of these crests so you may have to experiment with the **Dvar** value as well as the **Col(our)** value and also the **Var** value with sets the amount the texture effects other values. Experiment under the lighting setup you need for your ocean.

Next we will move on to the motion of our ocean.