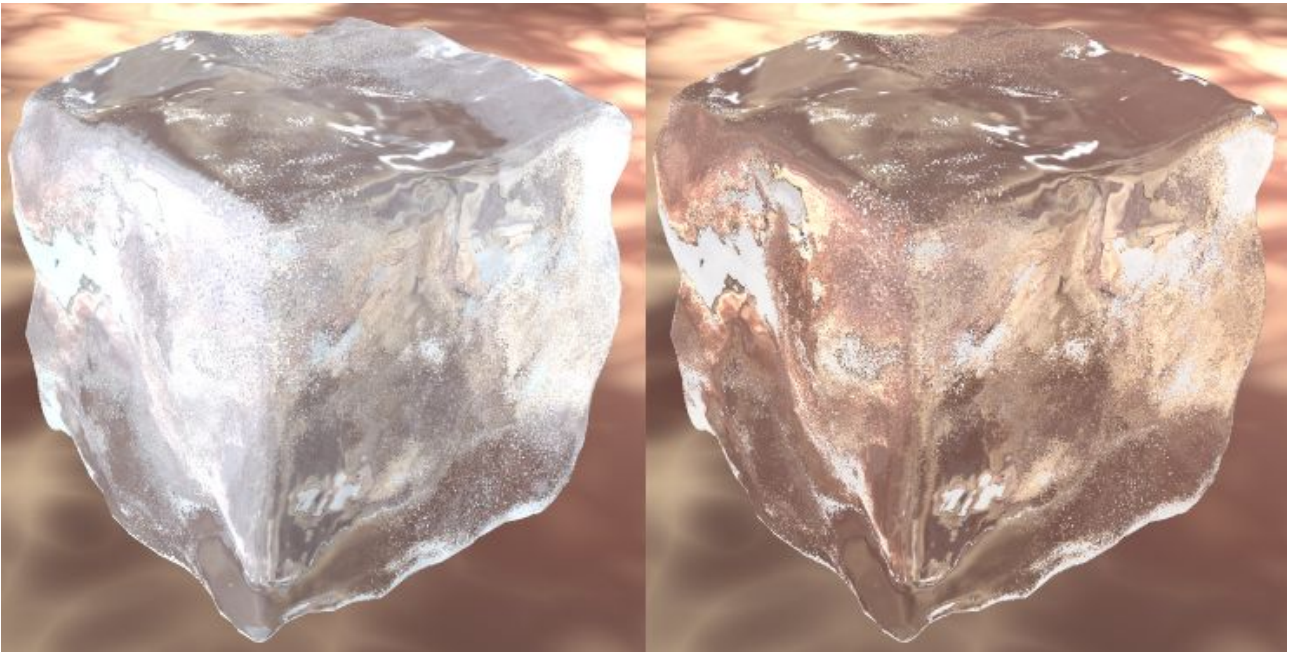


Blender Shaders :

Ice cube



Document Created by CyaNn, 2004

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Special thanks to dgebel for his greate syntax correction (very difficult with me ;))

<http://www.freewebs.com/nogenius>

I. Workspace

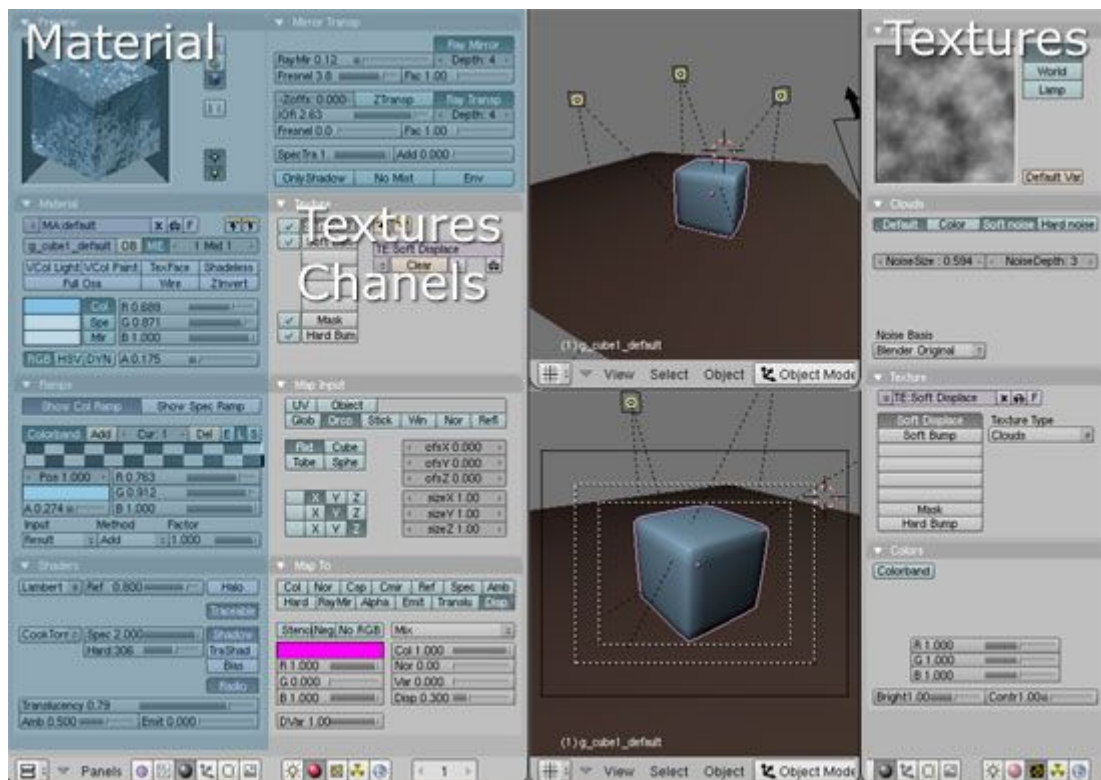
I think to simplify making good artwork, it's important to have a good global vision of what you are working on. Blender has a very customizable workspace which makes it easy to do this.

It's simple to join or split a window, just right-click on a window border and select your desired option.

As well, you can use **[ctrl] + [leftArrow]** or **[ctrl] + [rightArrow]** navigate into different workspaces, or select the workspaces from the drop-down list (called Datablocks in the tooltip help)

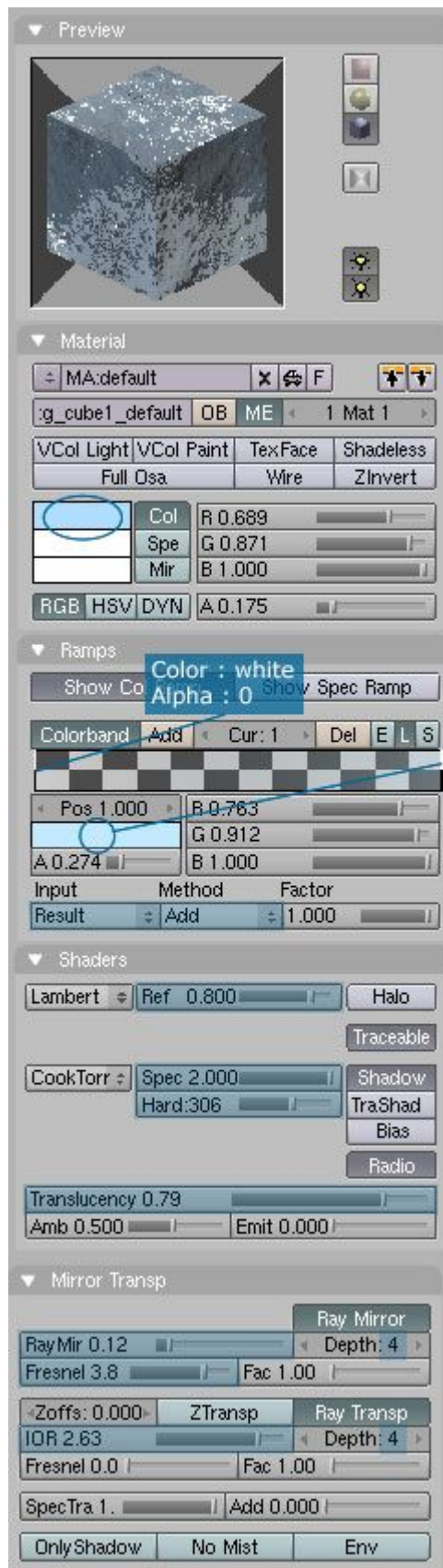
Use the menu item, "File/Save default setting" to save your workspace settings.
I have made a file with workspace panels on my website that you can download.

Download <http://caron.yann.free.fr/tutBlender/Shaders/IceCube/Sources/.B.blend>
Install it in your blender program root/.blend directory.



II.Shader

II.1Material



First I set color and alpha like on the image.

Then, on the Ramps tab, click to activate colorband, and set two colors :

Left : white, alpha 0

Right : LightBlue, alpha 0.27

Important! Set Input to Result and Method to Add

Input sets the ramp calculation formula. On result calculates the ramp from Shader, Lighting, and object normals

For this shader, there is nothing really difficult. I used an intense specular with high value of spec and high hardness.

Hardness concentrates the light impact.

Here I use translucency to permit light to pass through mater and be transmitted to the back of the object. For example white paper backlighted.

The most important setting for this shader, the ray tracing parameters, are set on panel Mirror Transp.

As ice is a little reflective, I set a small mirror value to reflect environment. Fresnel permit to decrease the effect on object center.

Ray transp is the most important setting for this shader, I set a high IOR value to render a strong diffraction effect, which is

characteristic of ice. Normally this value must be set to 1.309 (cf. Chapter III, Index of refraction) but I usually prefer to set the

value according to what I see rather set real values. It's up to you.

Next, click on Ray on the Render Buttons panel **[F10]**



II.2 Textures



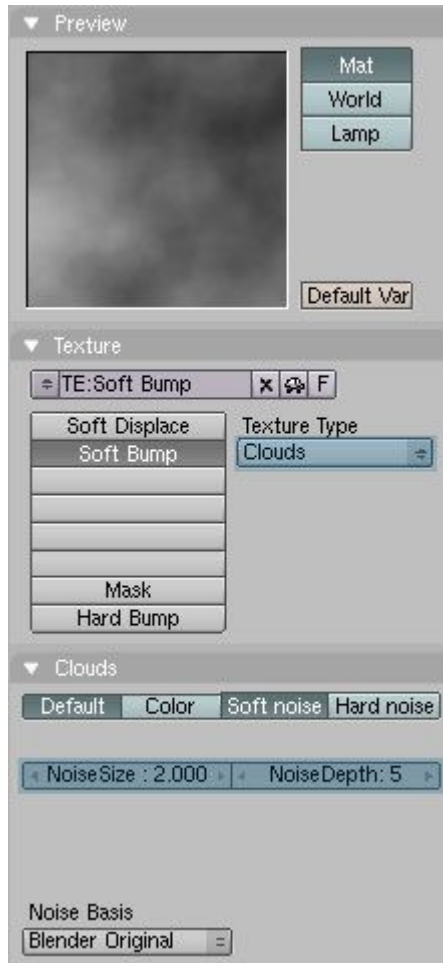
I use a light cloud to set displacement. It permits you to change the object geometry.

White points move up along the normal, and black points move down the normal.

Displacement is really useful to make complex object details without modeling everything.

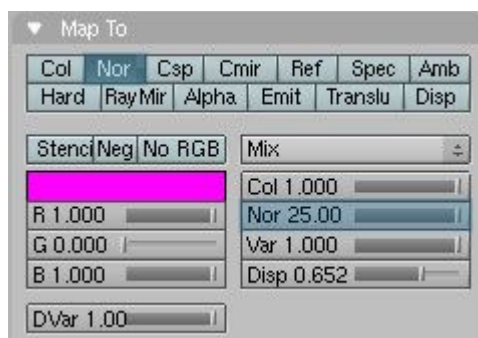
When using displacement don't forget to set

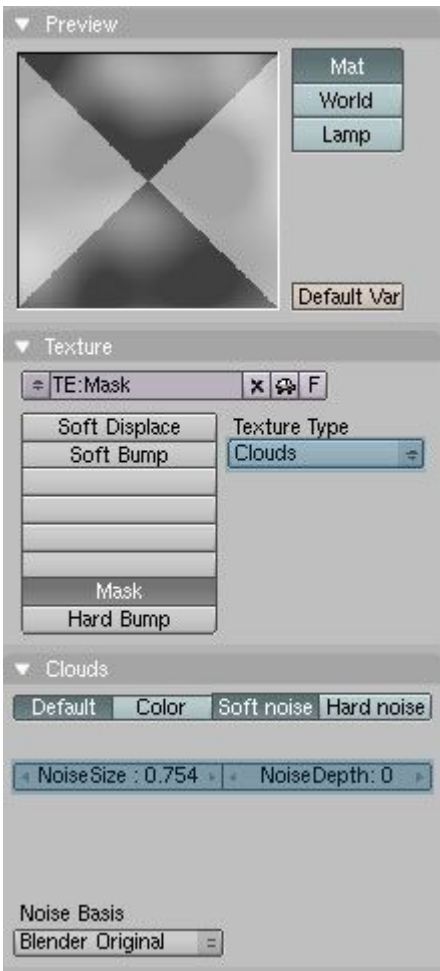
Normal value to 0



For bump, like displacement, I choose a cloud procedural texture.

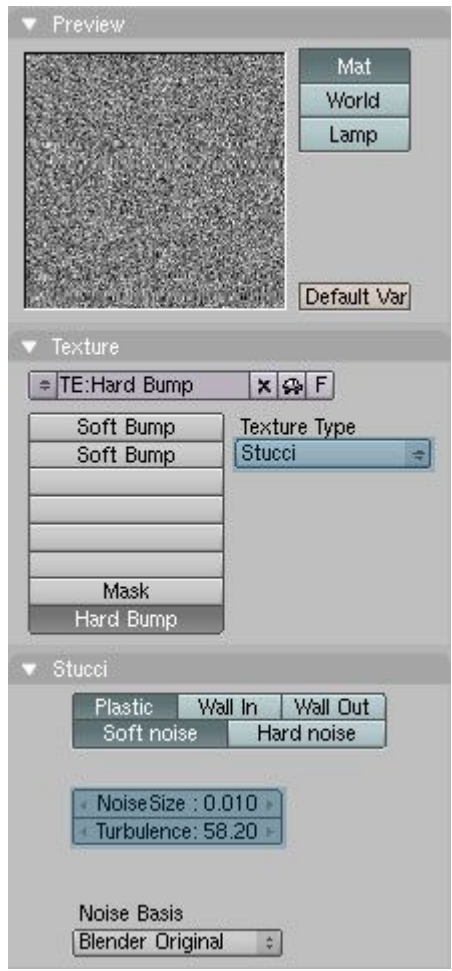
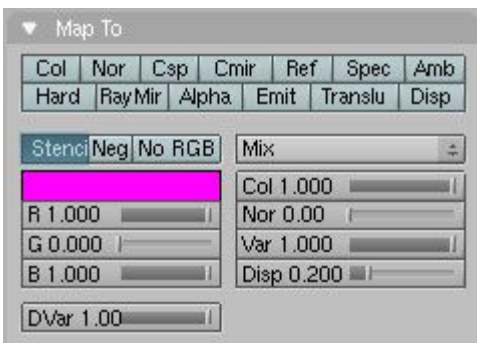
The differences between bump and displacement is that bump doesn't change geometry. It just changes the render point normals to simulate roughness. Render point normals directly influence specular and surface lighting.



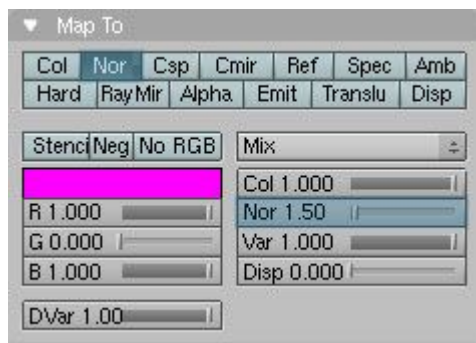


Now make a mask to apply little bump (next texture) only in certain places.

To make this I use the stencil option on the texture.



Now add a stucci texture to give a little grain on the bump map.



III. Index of refraction

Acetone	1.36	Colemanite	1.586	Hemimorphite	1.614
Actinolite	1.618	Copper	1.10	Hiddenite	1.655
Agalmatoite	1.550	Copper Oxide	2.705	Howlite	1.586
Agate	1.544	Coral	1.486	Hydrogen (gas)	1.000140
Agate, Moss	1.540	Cordierite	1.540	Hydrogen (liq)	1.0974
Air	1.0002926	Corundum	1.766	Hypersthene	1.670
Alcohol	1.329	Crocoite	2.310	Ice	1.309
Alexandrite	1.745	Crystal	2.00	Idocrase	1.713
Aluminum	1.44	Cuprite	2.850	Iodine Crystal	3.34
Amber	1.546	Danburite	1.633	Iolite	1.548
Amblygonite	1.611	Diamond	2.417	Iron	1.51
Amethyst	1.544	Diopside	1.680	Ivory	1.540
Anatase	2.490	Dolomite	1.503	Jade, Nephrite	1.610
Andalusite	1.641	Dumortierite	1.686	Jadeite	1.665
Anhydrite	1.571	Ebonite	1.66	Jasper	1.540
Apatite	1.632	Ekanite	1.600	Jet	1.660
Apophyllite	1.536	Elaeolite	1.532	Kornerupine	1.665
Aquamarine	1.577	Emerald	1.576	Kunzite	1.655
Aragonite	1.530	Emerald, Synth flux	1.561	Kyanite	1.715
Argon	1.000281	Emerald, Synth hydro	1.568	Lapis Gem	1.500
Asphalt	1.635	Enstatite	1.663	Lapis Lazuli	1.61
Augelite	1.574	Epidote	1.733	Lazulite	1.615
Axinite	1.675	Ethanol	1.36	Lead	2.01
Azurite	1.730	Ethyl Alcohol	1.36	Leucite	1.509
Barite	1.636	Euclase	1.652	Magnesite	1.515
Barytoalcite	1.684	Fabulite	2.409	Malachite	1.655
Benitoite	1.757	Feldspar, Adventurine	1.532	Meerschaum	1.530
Benzene	1.501	Feldspar, Albite	1.525	Mercury (liq)	1.62
Beryl	1.577	Feldspar, Amazonite	1.525	Methanol	1.329
Beryllonite	1.553	Feldspar, Labradorite	1.565	Moldavite	1.500
Brazilianite	1.603	Feldspar, Microcline	1.525	Moonstone, Adularia	1.525
Bromine (liq)	1.661	Feldspar, Oligoclase	1.539	Moonstone, Albite	1.535
Bronze	1.18	Feldspar, Orthoclase	1.525	Natrolite	1.480
Brownite	1.567	Fluoride	1.56	Nephrite	1.600
Calcite	1.486	Fluorite	1.434	Nitrogen (gas)	1.000297
Calspar	1.486	Formica	1.47	Nitrogen (liq)	1.2053
Cancrinite	1.491	Garnet, Almandine	1.760	Nylon	1.53
Carbon Dioxide (gas)	1.000449	Garnet, Almandite	1.790	Obsidian	1.489
Carbon Disulfide	1.628	Garnet, Andradite	1.820	Olivine	1.670
Carbon Tetrachloride	1.460	Garnet, Demantoid	1.880	Onyx	1.486
Cassiterite	1.997	Garnet, Grossular	1.738	Opal	1.450
Celestite	1.622	Garnet, Hessonite	1.745	Oxygen (gas)	1.000276
Cerussite	1.804	Garnet, Rhodolite	1.760	Oxygen (liq)	1.221
Ceylanite	1.770	Garnet, Spessartite	1.810	Painite	1.787
Chalcedony	1.530	Gaylussite	1.517	Pearl	1.530
Chalk	1.510	Glass	1.51714	Periclase	1.740
Chalybite	1.630	Glass, Albite	1.4890	Peridot	1.654
Chlorine (gas)	1.000768	Glass, Crown	1.520	Peristerite	1.525
Chlorine (liq)	1.385	Glass, Crown, Zinc	1.517	Petalite	1.502
Chrome Green	2.4	Glass, Flint, Dense	1.66	Phenakite	1.650
Chrome Red	2.42	Glass, Flint, Heaviest	1.89	Phosgenite	2.117
Chrome Yellow	2.31	Glass, Flint, Heavy	1.65548	Plastic	1.460
Chromium	2.97	Glass, Flint, Lanthanum	1.80	Plexiglas	1.50
Chrysoberyl	1.745	Glass, Flint, Light	1.58038	Polystyrene	1.55
Chrysocolla	1.500	Glass, Flint, Medium	1.62725	Prase	1.540
Chrysoprase	1.534	Glycerine	1.473	Prasiolite	1.540
Citrine	1.550	Gold	0.47	Prehnite	1.610
Clinozoisite	1.724	Hambergite	1.559	Proustite	2.790
Cobalt Blue	1.74	Hauynite	1.502	Purpurite	1.840
Cobalt Green	1.97	Helium	1.000036	Pyrite	1.810
Cobalt Violet	1.71	Hematite	2.940	Pyrope	1.740

Quartz	1.544	Water 35°C (Room temp)	1.33157
Quartz, Fused	1.45843	Willemite	1.690
Rhodizite	1.690	Witherite	1.532
Rhodochrisite	1.600	Wulfenite	2.300
Rhodonite	1.735	Zincite	2.010
Rock Salt	1.544	Zircon, High	1.960
Rubber, Natural	1.5191	Zircon, Low	1.800
Ruby	1.760	Zirconia, Cubic	2.170
Rutile	2.62	Water 35°C (Room temp)	1.33157
Sanidine	1.522	Willemite	1.690
Sapphire	1.760	Witherite	1.532
Scapolite	1.540	Wulfenite	2.300
Scapolite, Yellow	1.555		
Scheelite	1.920		
Selenium, Amorphous	2.92		
Serpentine	1.560		
Shell	1.530		
Silicon	4.24		
Sillimanite	1.658		
Silver	0.18		
Sinhalite	1.699		
Smaragdite	1.608		
Smithsonite	1.621		
Sodalite	1.483		
Sodium Chloride	1.544		
Sphalerite	2.368		
Sphene	1.885		
Spinel	1.712		
Spodumene	1.650		
Staurolite	1.739		
Steatite	1.539		
Steel	2.50		
Stichtite	1.520		
Strontium Titanate	2.410		
Styrofoam	1.595		
Sulphur	1.960		
Synthetic Spinel	1.730		
Taaffeite	1.720		
Tantalite	2.240		
Tanzanite	1.691		
Teflon	1.35		
Thomsonite	1.530		
Tiger eye	1.544		
Topaz	1.620		
Topaz, Blue	1.610		
Topaz, Pink	1.620		
Topaz, White	1.630		
Topaz, Yellow	1.620		
Tourmaline	1.624		
Tremolite	1.600		
Tugtupite	1.496		
Turpentine	1.472		
Turquoise	1.610		
Ulexite	1.490		
Uvarovite	1.870		
Variscite	1.550		
Vivianite	1.580		
Wardite	1.590		
Water (gas)	1.000261		
Water 100°C	1.31819		