

# Spume

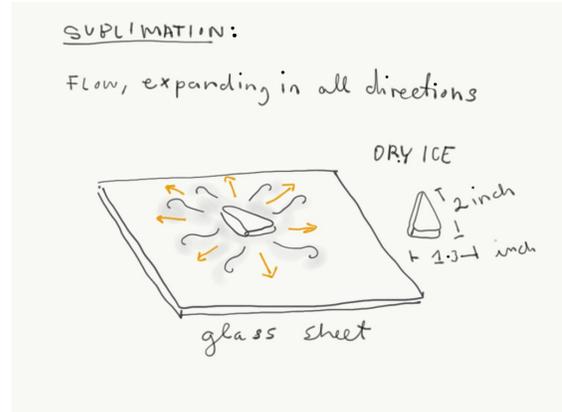
Visuals: Alejandra Abad - MFA Art Practice Music: Steve Jones

Assignment: Get Wet Report

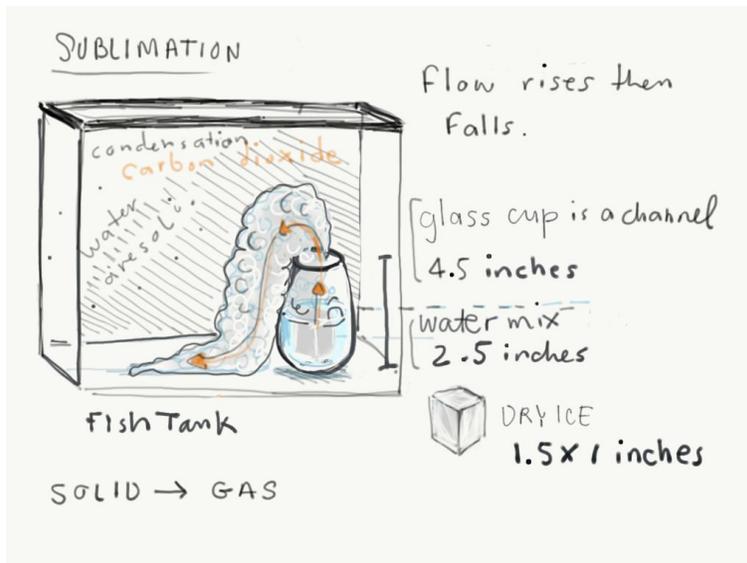
Class: Flow Visualization - ARTF 5200-001

Date: 09/12/19

**First Paragraph:** For the assignment Get Wet, I made a video by layering visuals that capture different moments when dry ice turns into gas; The phenomenon was the transformation of solid carbon dioxide into gas, this process is called sublimation. I wanted to emphasize the movements created by fog by using a bright green background during the day and using a black background during the night.

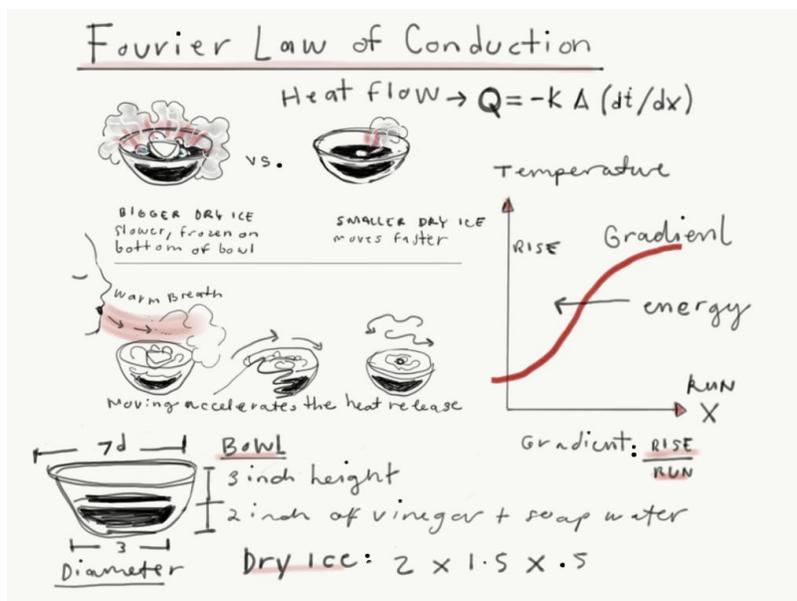


**Second Paragraph:** Dry ice is carbon dioxide in a solid form. The objective was to capture the changes until the dry ice disappeared. The dry ice moved when placed on a glass surface. If the dry ice froze on the surface, then the dry ice stops moving. As seen in the video where the background is black and the dry ice was releasing gas (see 1:14, 1:17, and 1:18). When I dropped food coloring onto solid carbon dioxide, it tended to freeze the drops, but then the dry ice started to turn into gas at a faster rate if more warm water was poured (1:24). When the dry ice was submerged in a small glass with soap and warm water the dry ice created a bubbling fog that overflows (0:42). This is why a fish tank comes in handy. The



The glass was placed inside the fish tank to contain the overflow of the bubbles. If the dry ice was placed in a bigger bowl outside the fish tank then the dry ice created great amounts of fog, if you blew the fog away, you would notice a few bubbles and as it decreases in size it started to flow through the water (0:03). By this point you could easily

move the bowl, making the dry ice rotate and fire off gas as if it were a comet. If there was less soap in the water solution, the bubbles decrease (1:51). I recorded the dry ice in different situations. The visuals show different speeds in which the dry ice reacted to the warm mixed soap water. I think the force was the change from solid to gas, but it accelerated if you added water and soap. Also, because the surface temperature of solid dry ice is -109.3 degrees, the fog that forms is water droplets (water aerosol) of carbon dioxide and so it forms like a cloudy smoke because the dry ice is so cold that it makes the air condense (“Dry Ice” 2019). Also if you moved it or blew onto the changing dry ice, you could document it’s changes because of the warmth of your breath. The larger the gradient the faster the energy will move from hot to cold.



This drawing explains Fourier’s Law of Heat Conduction, “the time rate of heat transfer through a material is proportional to the negative gradient in the temperature and to the area” (“Fourier’s Law” 2018).

**Third Paragraph:** I used different backgrounds and captured the visualization of sublimation. Materials: Dry Ice with a green & black background, warm water, Seventh-Generation dish

soap, food dye, black reduced balsamic vinegar. For example I submerged dry ice inside different glass containers, I placed dry ice in a bowl with reduced balsamic vinegar with a mix of soap and water, and I placed dry ice on top of a wet glass sheet where I dripped food coloring onto it. I took video at night and during the day in order to control light in different scenarios. I used a black backdrop during the night time with all the lights off and just one source of light. During the day I used a bright green sheet with black balsamic reduction inside a bowl.

**Fourth Paragraph:**

Some of the techniques included using warm water moving a bowl, blowing on the dry ice, using soap and dripping different substances like food coloring, pouring warm water into a glass inside a fish tank as well, also on a glass sheet as well as using a bowl

outside of the fish tank on top of a table. I also used Balsamic reduced vinegar so that the gas from the dry ice would have a good contrast.

- The size of the field view varies with the scale of the object is anywhere from 2x 2 x.5 inches of dry ice placed into a bowl, glass cup, fish tank and glass sheet as it decreased in size.
- The width of the various shots vary from 12 inches to 4 inches.
- The Distance from the dry ice to lens varied from 3 inches to 5 inches.
- I used a Canon EF-S 18-55mm f/3.5-5.6 IS STM lens
- I used a Canon Rebel T6i digital camera.
- Original and final video 1280 x 720 aspect ratio
- Exposure specs: Aperture 5, 60p/50p, 1280 x 720 aspect ratio, and ISO setting 800
- Adobe Premiere Pro editing by layer manipulations, using blending modes such as multiply, screen, and lighten.

**Fifth Paragraph:** The image revealed the patterns in the fog and the ones that got trapped in bubbles. I disliked that didn't focus the object sometimes and forgot to remove the autofocus. I loved how the fog looked like the improvisation of music. I feel that it was clear how the dry ice sublimates. I want to know if there were ways to capture the speed of the fog at a slower rate or if maybe using a speed camera would help. I fulfilled my intent however I'd love to continue to experiment more. I think that by switching my camera and also changing the aspect ratio I will get a high definition. I created a series of different reactions and composed them.

### Works Cited

"Dry Ice." *How Products Are Made*. Encyclopedia.com. 19 Sep. 2019.  
<https://www.encyclopedia.com>.

"Fourier's Law of Heat Conduction." *ME Mechanical*, 16 Apr. 2018.  
<https://me-mechanicalengineering.com/fouriers-law/>.