Scientific Art

December 2009

> *"Facts which at first seem improbable will, even on scant explanation, drop the cloak which has hidden them and stand forth in naked and simple beauty."*
>
> Galileo Galilei

November 2009

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

January 2010

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Physical Science Question — What is the approximate maximum sea surface temperature ever recorded in the ocean? **W)** 28°C, **X)** 32°C, **Y)** 36°C, **Z)** 40°C A: 40° C		**1** World AIDS Day Day Without Art	**2**	**3** NSTA Area Conference Phoenix, AZ	**4** NSTA Area Conference	**5** NSTA Area Conference
6	**7**	**8**	**9**	**10**	**11** Chanukah (Begins at Sundown)	**12** ACT Test Date
13	**14**	**15**	**16**	**17**	**18** Islamic New Year (Depends on the sighting of the Moon in N. America)	**19**
20	**21**	**22**	**23**	**24**	**25** Christmas Day	**26** Kwanzaa Boxing Day
27	**28**	**29**	**30**	**31**		

http://nationalsciencebowl.energy.gov • www.nosb.org

Galileo discovered that the density of a liquid changes with its temperature, forever changing scientific data collection. This principle led to the development of the Galileo thermometer. Galileo thermometers have long vertical glass tubes that contain clear liquid and several brightly colored floating glass bulbs with attached temperature weights. The bulbs rise or sink according to the surrounding temperature. The correct temperature is read by the position of the bulbs; the lowest floating ball in the top half of the thermometer is the correct temperature. Galileo thermometers are often beautiful masterpieces as well as functional instruments.

Today, the thermometer is an integral part of measuring the state of the world's oceans. At the surface of the ocean, temperature is often taken by thermometers that are attached to buoys. At deeper depths, a project called Argo has taken on the task of monitoring temperature. Argo floats are deployed all over the world's oceans. They sink to 2,000 meters, drift at that depth for about 10 days, and then collect data as they make their way to the surface. At the surface, they download their data to a satellite and scientists can then access the data. Because data are continuously collected over 10 days, Argo will offer a quantitative description of how the upper ocean changes with climate. These data will also be used to initialize models, enhance satellite data, and test our forecasting capabilities. At deeper depths, instruments may be deployed from research vessels or platforms.

Galileo thermometer photo courtesy of "concretecandy", http://www.flickr.com/photos/fairtomiddling; Deploying deep-ocean moored buoy photo courtesy of the National Oceanic and Atmospheric Administration (NOAA); Jacket of "Thalassa" by John James Wild from the Treasures of the NOAA Collection courtesy of NOAA