Tomato Juice from the Sky

Abstract or Summary:

Previously we've seen the news Written Chungli's acid rain is the highest in Taiwan. Arouse our concern for this piece of land. Further, we decided to observations and research. We hope that by the pH of the rainfall observation and comparison data can let us know something.
After the study we found that the reason of acid rain caused many. Everyone may cause pollution of acid rain in their life.
Usually the pH of rainwater at 5.6 is normal, but at first we use pH test strips found the lowest rainfall pH goes to 4.0. Furthermore we found that after using the instrument data, we found that the pH are at 5 to 7.4, the data is more reasonable. Integration of information we think the overall pH is low, perhaps on behalf of the entire Taoyuan area contamination is there, worth thinking about.

Research Report

1. Literature & Definition of acid rain

1. The definition of acid rain: Under normal circumstances, due to rain slightly dissolved carbon dioxide and slight acid. But industrial areas such as waste generated with sulfur compounds dissolved in rainwater, the pH will be smaller. Generally, the normal rainfall pH is 5.6, and the pH of 5.0 or less is called acid rain. However, only a preliminary determination of acid rain pollution standard, industrial pollution which have an alkaline substance, which may result in acid-base neutralization. Subject tests can really determine the types of pollutants.

2. Effect of acid rain: In forest ecosystems, wet deposition of acidic substances directly. But in grassland ecosystems and desert ecosystems substantially less rainfall, mainly dry deposition or occult settlement. The pollution in estuarine ecosystem and Aquatic ecosystem are difference because still water or flowing waters can affect harmful levels of acid rain. Marine ecosystems is the most serious polluted ecosystem , since it is a hub of the entire water cycle , evaporation of rainwater with hazardous substances will further affect the whole ocean and water cycle .

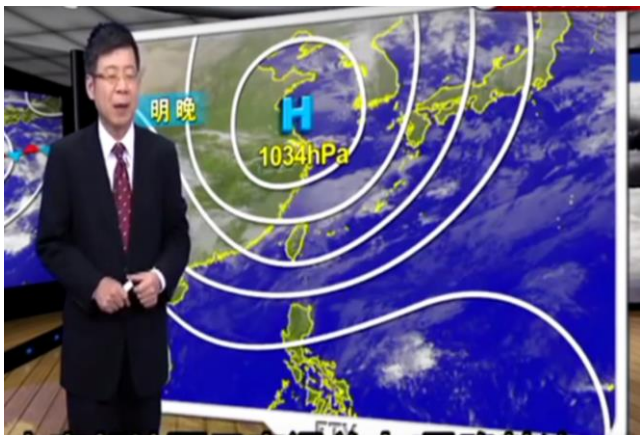
2. Observation Data

Date	Observation Time	LF	RT	Max LF	Min LF	Max RT	Min RT	Temp	RH	Rain Fall	Rain pH	EC μS
2015/12/31	11:56	16.7	17.8	16.7	16.7	17.8	17.7	18.2	68%	4	4.0	
2016/1/13	11:59	13.1	15.8	13.1	12.9	15.8	15.7	14.5	88%	4.9	5.9	
2016/1/14	12:00	14.7	15	14.6	13.6	15.1	14.8	14.7	87%	2.3	6.2	
2016/1/18	11:50	14.8	16.5	14.8	14.4	16.5	16.3	15.1	80%	51	6.2	86
2016/1/19	11:48	13.2	14.8	16.7	12.1	18.1	14.4	15.9	75%	2.6	7.1	
2016/1/29	12:00	16.4	16.1	16.4	16.2	16.1	15.9	17.9	38%	25	6	243
2016/1/30	11:58	14.7	15.7	14.7	14.4	15.7	15.7	16.3	91%	28.8	5.4	97
2016/2/2	11:58	10.8	12.9	10.8	10.6	12.9	12.7	12.8	84%	29.2	6.7	42
2016/2/18	12:00	17.5	15.5	17.5	17.1	15.5	15.3	16.6	82%	13	5	237
2016/2/24	12:00	12.2	13.6	12.2	12.2	13.6	13.6	14.8	79%	4.8	5.5	379
2016/3/9	11:58	15.8	18.3	13.9	13.7	18.3	18.3	19.3	65%	7	7.4	344
2016/3/10	12:00	10.9	14.2	10.9	10.7	14.2	14.2	15.2	73	45	5.3	27

3. Research and Discussion

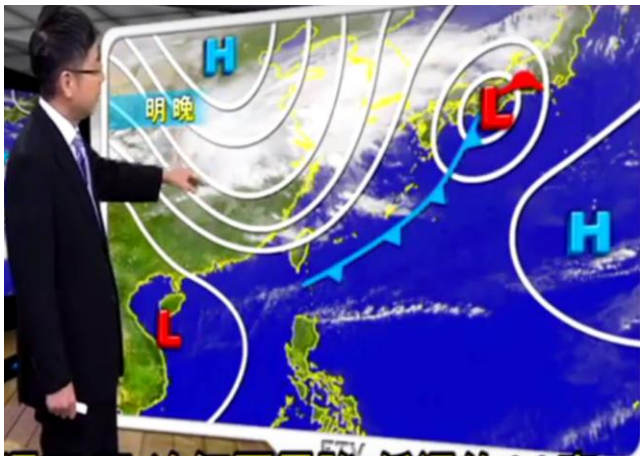
(1)Research：

2015/12/31 **pH4.0**



Because of the Anticyclone from China, so the pH of rain is low.

2016/3/9 **pH7.4**



Because Stationary front cause this rain, the pollution from China doesn't affect us a lot, the pH of the rain is higher.

(2)Discussion：

Usually rainwater’s pH 5.6 is normal. But at first, we found using pH test paper actually reached 4.0 at the lowest. Doubting the digits, we used sophisticated instruments, we found the pH is 5 to 7.4. The data is more reasonable. It perhaps represents the entire Great Taoyuan area contamination is real exist, worth thinking about.

The relationships between where the rain comes from and the pH:

In Taiwan, the source of winter rainfall comes from northeast monsoon. Northeast monsoon is mainly derived from the Siberian cold High-pressure area. Northeast monsoon comes to Taiwan by the way of the East China. Linkou and Taoyuan tableland platform due to higher ground condenses rain, the Chinese coastal and the Northern Taiwan industrial zones’ air pollutions by wet deposition and dropped to the ground. According to satellite’s observations, we found that at China's high-pressure day, rainwater pH is 5 to 6 in Taiwan. When there was stationary front in Taiwan, the pH of rain ranging from 6 to 7.It needs more evidences to confirm this conclusion.

4. Future Work:

At present, our data is still not enough for the reasons of that, time is too rush, replacing instrument, and pH must be measured in the raining days. We hope we can continue this work in the future. Collecting more information to prove the acid rain problem in Taoyuan area. By inquiring relative Government Bureaus, collecting data and discussing with scientists to solve our puzzle of acid rain. We want to know where acid rain comes from? How to prevent it, and minimize the impact on us.

5. Thumbnail Image：

6. Photo Release Forms：