Weather Moods Change

New Mexico
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Team 18
CEPi 1

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Executive Summary

We are all affected by the weather. Whether it's what we wear or how we feel, we all feel the effects of the weather, everyday. However, the sources of the emotional effects on a person have not been researched heavily in the US. There is some speculation as to the source being related to the barometric pressure. We were able to find only one reliable study for our data. Our goal was to prove or disprove the theory of mood in relation to the daily barometric pressure. We were unable to produce running code at this time but we have been able to construct a conceptual model.

Statement of the Problem

People's decisions are effected by their mood every second of every day. If we could predict a person's mood by looking at the weather forecast, people would be able to plan out emotional affairs smartly. So let's say, if you know your boss will be in a better mood one day as opposed to another, you would probably plan to ask for a raise on the better day. Can you imagine how many fights could be avoided if people could make an "emotional forecast." Our day to day interactions with people could be made so much better if we could know the person's mood before we even started the conversation.

Solving the Problem

To solve our problem we first had to find where we were going to get our comparison data. As we stated before, there is very little reliable studies done in the US. Of those we could find there was no statistical data which we could make our model from. However, we found one Russian study titled “The effect of weather on mood, productivity, and frequency of emotional crisis in a temperate continental climate,” that has tables and statistics using barometric pressure.

We also conducted a paper survey around our school; however we found that the process wasn’t taken seriously and our data was unusable. The kids didn’t answer the questions truthfully or take other factors into consideration (i.e. family problems, relationship trouble, etc.) We didn’t have time after all this was done to try and get accurate data, and our project turned into a simulation of the Russian data.

Our model that we have right now just has running pressure moving through the “world” and clouds running across. We didn’t

have the time to make our rays collide with the clouds and bounce off back into space (lowering the pressure), pass through the clouds (raising pressure), or be absorbed by the clouds (lowering pressure). Then, the pressure that passes through, gets either absorbed by the ground (maintaining the pressure) or bounced off (maintaining, raising, or lowering depending on whether the ray is absorbed, refracted or able to pass through the clouds.) As the barometric pressure rises (on a clear day) so do people's spirits, meaning they are in a better mood. But when it's cloudy outside and the barometric pressure is lower, the general population will be in a worse mood (irritable, moody, angry, and less productive.)

Results

Table 2. Interpretation of the rotated factors

Rotated weather factors

1 Fair and cool, high pressure, windy
2 Morning drizzle after previous day rain, cold, clearing by afternoon, windy, partly cloudy and dryer, remaining cool
3 Rapidly rising pressure, very windy, clearing, warm but turning colder
4 Substantial evening rain
5 Early clearing, much dryer and sunnier than previous day
6 Substantial afternoon rain, ending by early evening
7 Rapid warming trend, falling pressure, windy

Rotated male mood factors

1 (Loadings multiplied by -1) high productivity, asymmetric morale and invulnerability distributions
2 Asymmetric nonirritability distribution, high morale range
3 High invulnerability and nonirritability ranges
4 High morale, high nonirritability, high invulnerability, asymmetric morale distribution

Rotated female mood factors

1 Asymmetric nonirritability distribution, symmetric invulnerability distribution, high nonirritability range
2 (Loadings multiplied by - 1) productive, low invulnerability range
3 Asymmetric invulnerability distribution, high morale range
4 High morale, high nonirritability, high invulnerability

Rotated total sample and Crisis Service calls factors

1 High morale range, high productivity, high nonirritability range
2 High morale, high nonirritability, high invulnerability
3 High frequency of severe Crisis Service calls
4 High frequency of ordinary Crisis Service calls

Table 3. Rotated weather versus mood factor correlations having 0.05-significance or greater. *W4* denotes "weather factor 4", etc. Correlation coefficient is followed by two-tailed significance level

Male mood versus weather

W5 vs. M1	-0.30	p=0.05
W4 vs. M3	-0.38	p=0.02
W6 vs. M4	-0.40	p =0.02

Female mood versus weather

(none)

Total sample mood (and CS calls) versus weather

WI vs. M1	-0.35	p=0.02
W3 vs. M2	0.32	p=0.04
W7 vs. M4	0.45	p=0.005

When you read these tables together, they lay out the findings pretty well. They demonstrate that when the day is clear in the morning and much dryer and sunnier than the day before, men

have a high productivity, asymmetric morale and invulnerability distribution. Also when there’s a lot of evening rain, men have a high rang of irritability and morale. However, as for women, there are no s*ignificant* changes with their moods as related to the weather.

Conclusion

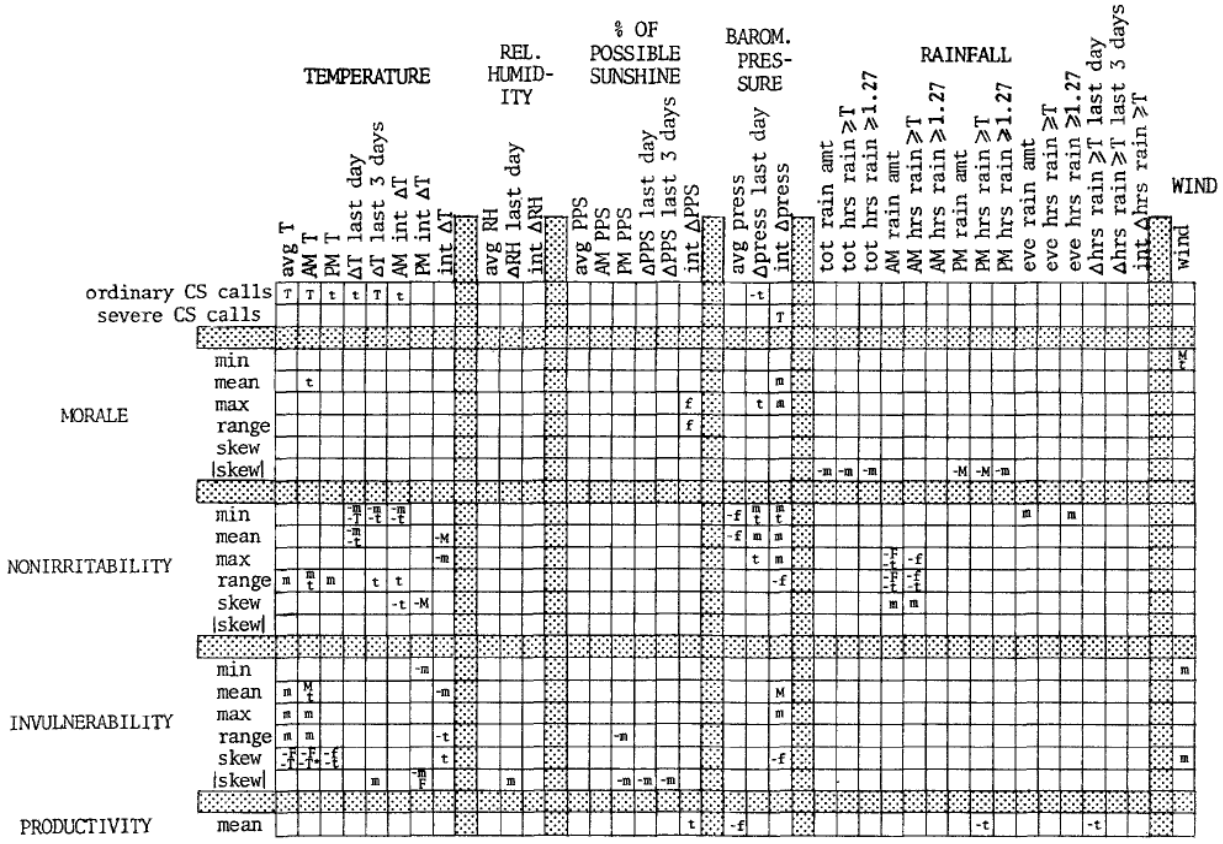

Fig. 1. Statistically significant relationships between weather and human behavior or moods, for males (*m* or *M*), females (*f* or *F*), and total sample (*t* or *T*). *Lower case* entries denote 0.05 significance, *upper case* 0.01 significance, and *asterisk* 0.001 significance; *minus signs* indicate negative correlations

This table reinforces our hypothesis that the weather does in fact alter a person's moods. It shows that as the barometric pressure changes, so does a person's mood. We have successfully proven that a change in barometric pressure directly impacts a person's mood *and* productivity.

Personal Achievements

Angela Caudle

During the course of this project, I have learned so much about weather and psychology. I also learned a lot about mathematical equations and creating them from scratch. Before this project, I couldn't remember what direct variation was. Through the course of the project I have learned that and much more.

Arlene Pino

During the course of this project I learned what barometric pressure is. I also learned about the effects it can have on a person's mentality. I had never heard the theory until we were searching for a project to do this year. I also learned lots about psychology and how the weather creates S.A.D (Seasonal Affectiveness Disorder.)

Acknowledgements

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Also, ***Jerry Esquivel***, our sponsoring teacher. Without his pushing and encouragement, we would have fallen off half way through the year and never *completed* the challenge.