



## Weather Forecasts and High Impact Allergy and Asthma Suffering

Weather Trends 360 CEO Captain Bill Kirk

1



### Speaker

---

#### Bill Kirk

- Weather Trends 360 CEO
- 17-time award winning technology firm specializing in YEAR-AHEAD weather and sales forecasting for Fortune 500 companies and small businesses worldwide
- USAF Gulf War Veteran, Captain
- Bible Scholar

2

## Inspiration for YEAR-AHEAD Forecasting (31 Years ago)



weathertrends360

3

## Year-Ahead Savvy Customers (Weather & Sales Forecasting)



weathertrends360

- 143 Fortune 5,000 clients
- 18 years supporting pharma and many diseases for IQVIA, Pollen.com, Bayer, J&J...
- Thousands of farmers and small businesses
- 18 Years in business
- 17 Technology awards – Forbes 5<sup>th</sup> Most Promising Company
- Clients in 195 countries

4

# How we do it...a YEAR-AHEAD

(Weather & Sales Forecasting)



- Traditional weather forecasting is physics-based that changes everyday. It struggles to get the week 2 forecast right.
- Weather Trends year-ahead forecast is more accurate than a week 2 forecast.
- It's trillions upon trillions of statistical calculations to generate year-ahead worldwide forecasts.

5

## Traditional Meteorology & Physics

Not how we do it

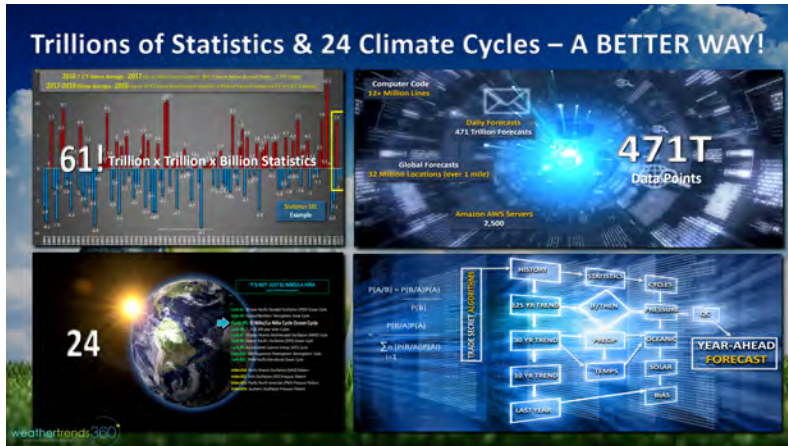


- Meteorology 101 is Physics based, a moving target with ever changing forecasts.
- If there was just one drop (one storm) that would be easy Physics highly accurate forecasting.
- But there are millions of interactions in the atmosphere (surface and aloft) making this a very challenging way to predict long term weather.
- Not how we do it!

6

# Weather Trends, Statistics & Climate Cycles

A better way to plan a year ahead



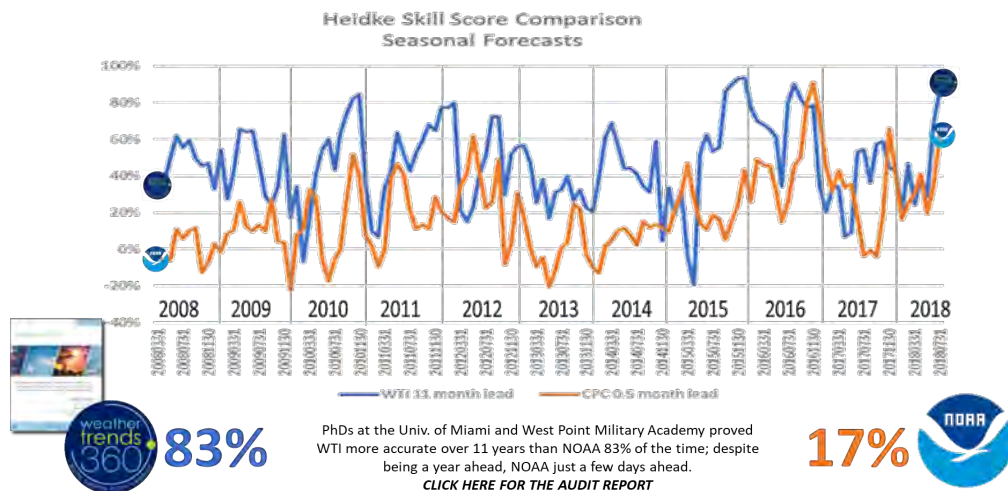
- Trillions upon trillions of statistics and 24 climate cycle trends allow for much more accurate YEAR-AHEAD weather forecasting.
- If you can get the weather right, week-by-week, a YEAR-AHEAD, then it's also possible to predict seasonal sales and weather ailments that complicate human suffering, everywhere on Earth!
- PhD Academics at the University of Miami, West Point Military Academy, Penn State and others validated the approach is the best way to make very long lead forecasts that don't change once issued for PROACTIVE vs REACTIVE planning.

weathertrends360

7

## Year-Ahead Accuracy

Outperforms NOAA's month ahead outlook 83% of the time!



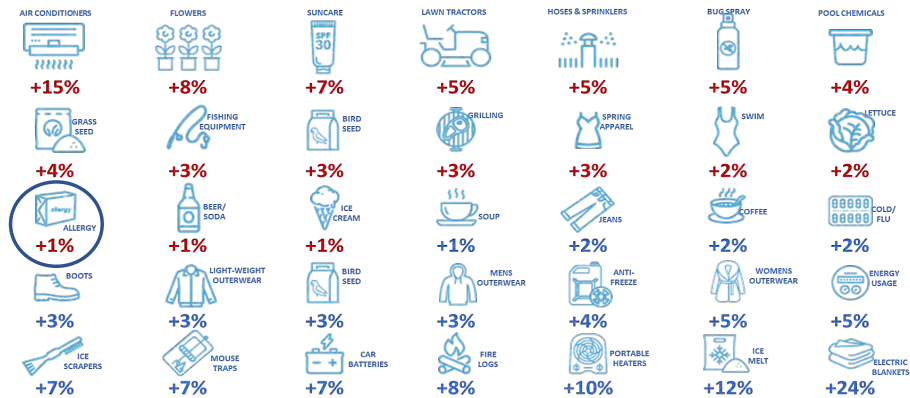
weathertrends360

8



# The Power of 1° Degree®

September 2021 will be a tough month for Ragweed sufferers



weathertrends360  
The Power of 1° Degree

9

## Predictive Analytics Based on Big Data

Dry weather anytime means more suffering

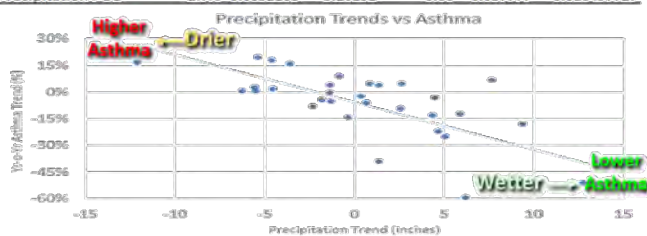
Regression Statistics					
Multiple R	0.69				
R Square	0.72				
Adjusted R Square	0.52				
Standard Error	0.17				
Observations	34				

ANOVA					
	df	SS	MS	F	Significance F
Regression	2	0.8010191	0.4005096	13.9	4.852E-05
Residual	31	0.8918779	0.0287703		
Total	33	1.6928971			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	-0.04	0.0297886	-1.463083	0.15	-0.104337	0.017171049
Temperature PO1	0.2%	0.0049059	0.4355331	0.67	-0.007869	0.012142395
Precipitation PO1	-2.7%	0.0052168	-5.20191	0.00	-0.037777	-0.016497727



weathertrends360  
The Power of 1° Degree

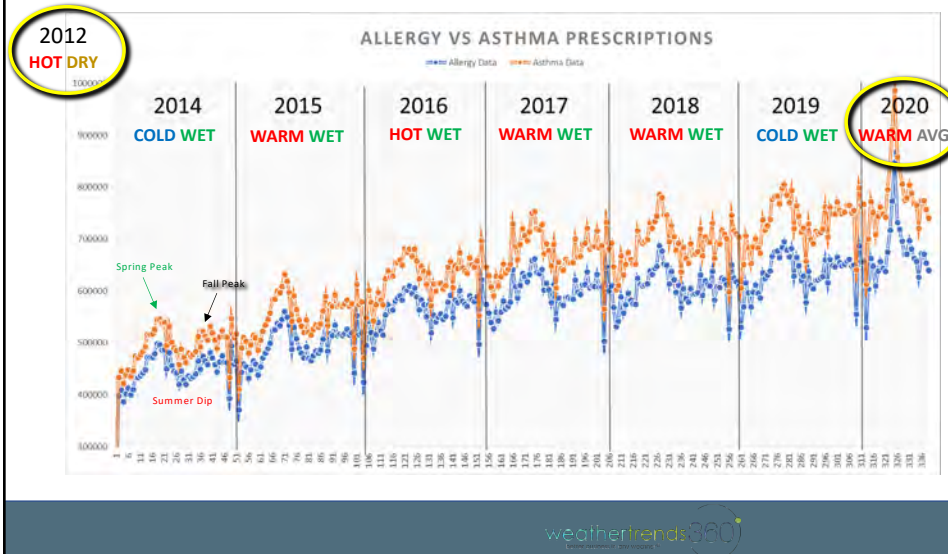
Weather Trends Power of 1 Degree® technology has analyzed IQVIA historical daily Asthma Index data by location, 3-Zip patient level data, EPA pollution by day, CDC Flu data, Allergy POS by week and Weather to develop short range and year-ahead Asthma & Allergy suffering models.

- Warm/Dry **Spring** more pollen, pollution in the air results in higher Asthma suffering
- Cool/Dry **Summer** slight increase in Asthma suffering
- Warm/Dry **Fall** Ragweed pollen & pollution result in higher Asthma suffering
- Cold/Dry **Winter** more pollution, lower humidity results in higher Asthma suffering

10

# Asthma & Allergy Medications

Dry weather anytime means more prescriptions and suffering

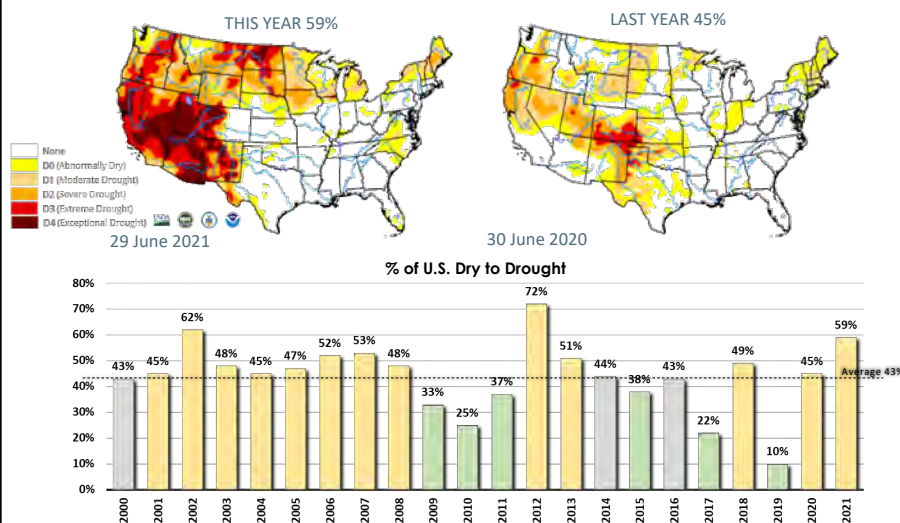


For 19 years, Weather Trends has been predicting year-ahead allergy sales and suffering for large retailers and manufacturers. The correlation between Allergy prescriptions filled and Asthma prescriptions is 94.8%, with both responding to warmer/drier weather in Spring and Fall, Colder/Drier in Winter.

11

## 59% of U.S. in Drought Phases

As of 29 June 2021 – the most in 9 Years!

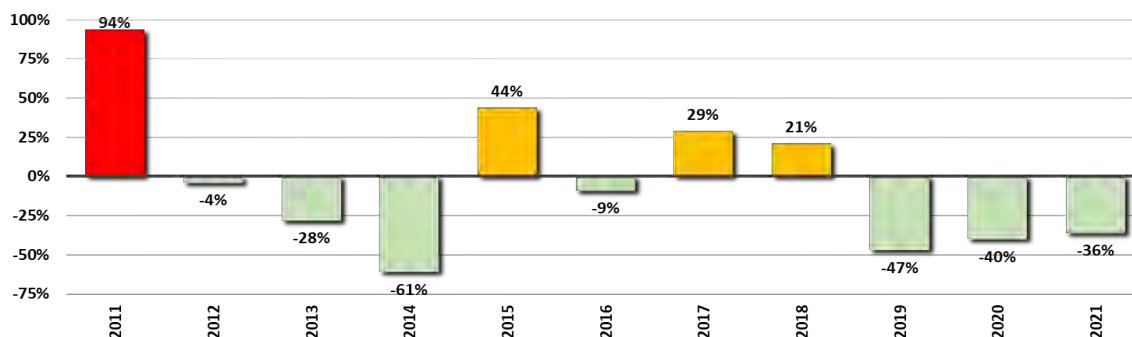


- Wet weather and wet soil conditions help to suppress pollen and pollutants and minimize dust from agricultural planting. 2019 record low drought.
- 2021 currently has the highest dry to drought conditions in 9 years due in part to several climate cycles (La Nina-Neutral, -PDO, +AMO, Solar Minimum) teaming up together, a 100-year event.
- Excessively wet areas in the South would have higher incidents of allergic reactions to mold spores.

12

## Wild Fires 36% Below Average

as of 7 July 2021



- Wild fire acres burned in the U.S. are trending 36% below average for the 2021 season to date. 1.6M acres burned vs an average of 2.5M.
- Drought seasons have less underbrush (fuel) available to burn. Severe fire seasons typically occur after a wet/snowy Winter.

weathertrends360

13

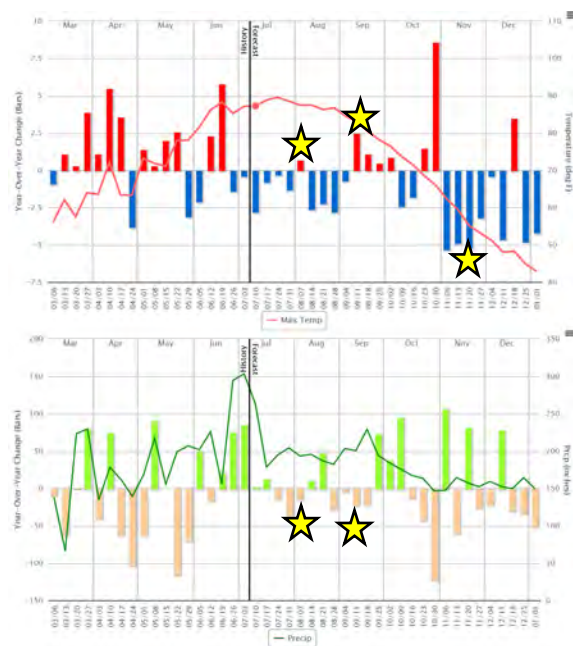
## U.S. Weekly Weather Trends

March 2021 – December 2021

- **Spring** (March – June) Warmest/Driest in 9 years – intense Allergy & Asthma season.
- **Summer** (June-August) is a bit cooler and slightly wetter than last year.

- ☐ July coolest in 6 years (above avg), wetter vs LY = slightly diminished suffering.
- ☐ August coolest in 4 years, driest in 6 years = increasing weeds
- ☐ September peak suffering rag weed period 8-22 September!
- ☐ October warmest in 4 years, driest in 7 = high pollution, extended allergy season.

★ Greatest increase in year-over-year Allergy & Asthma suffering.



weathertrends360

14

## Ragweed Season

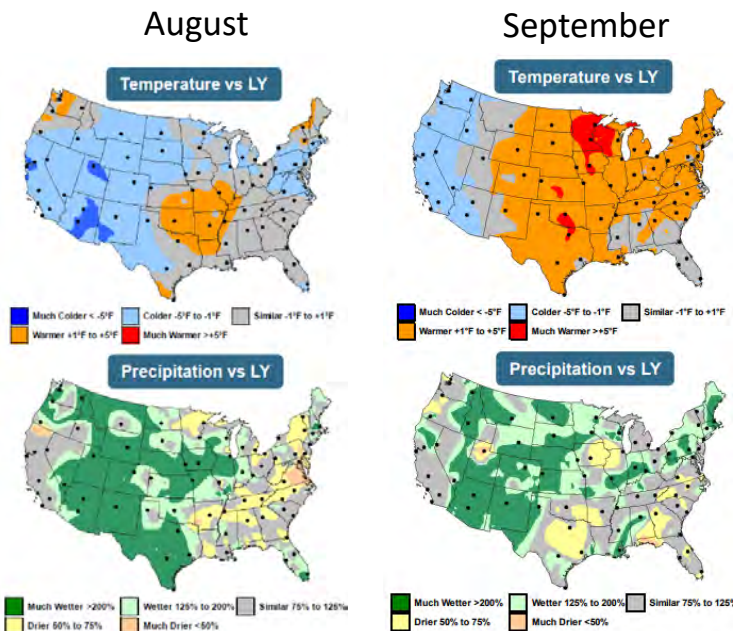
### August – September Outlooks

- **AUGUST:** Warmer/Drier areas are limited as the warmer areas are also generally wetter.

- ❑ Arkansas worst suffering than last year with the greatest change toward warmer and drier weather

- **SEPTEMBER:** Texas to the Midwest and the Southeast Middle Atlantic likely to have more ragweed suffering than last year

- ❑ Texas – Oklahoma and Virginia greatest change toward hotter/drier weather.

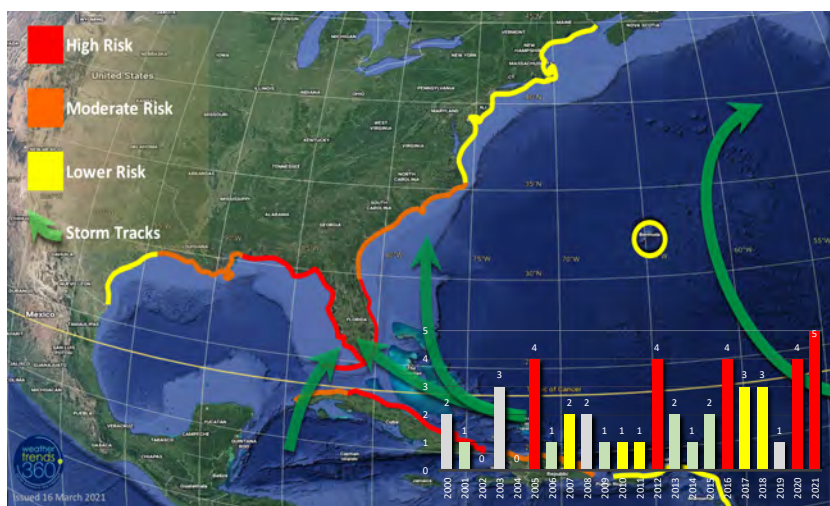


weathertrends360

15

## U.S. 2021 Hurricane Season Update

### WTI YEAR-AHEAD FORECAST: 3<sup>rd</sup> Most Active in 165 Years!



weathertrends360

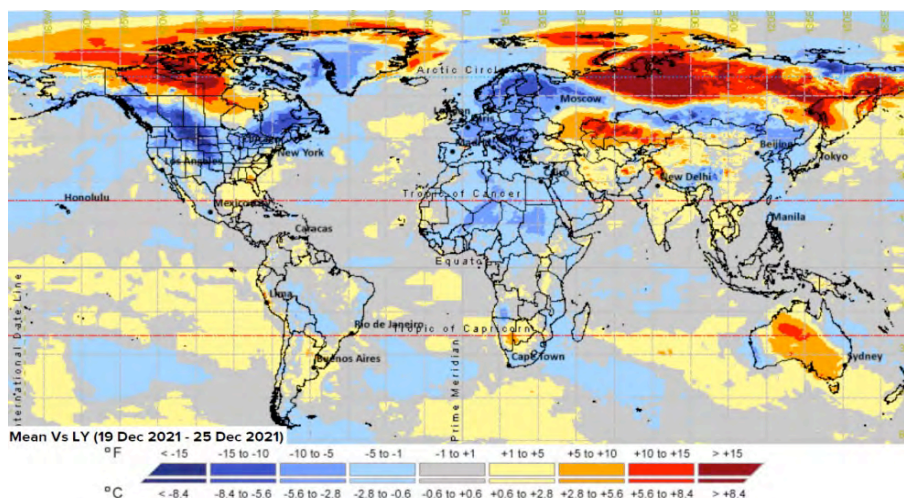
- 5 Named Tropical Storms before the 4<sup>th</sup> of July breaks 165 year record for the fastest start to the season!
- Hurricane Elsa (#5) impacted the Lesser Antilles, Cuba and Florida.
- Last year had 5 right after the 4<sup>th</sup> of July with the season going onto be the most active on record with 30 named storms.
- Fast starts guarantee a much above average hurricane season.

16



# Christmas in July! ☺

December 19<sup>th</sup> – 25<sup>th</sup> Temperature Trend Outlook

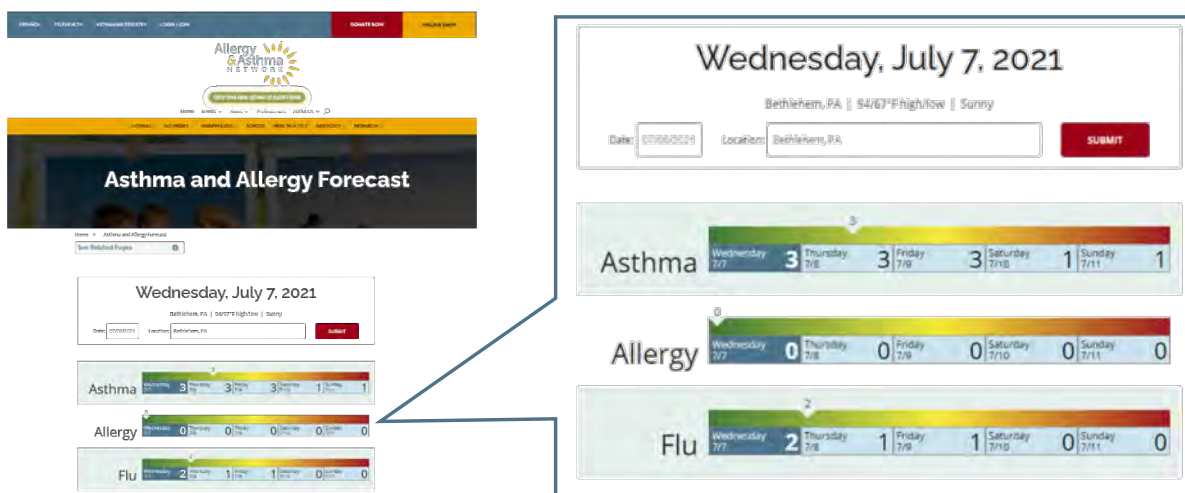


weathertrends360

17

## Asthma, Allergy and Flu Index Forecasts

[www.allergyandasthmanetwork.org/weather](http://www.allergyandasthmanetwork.org/weather)

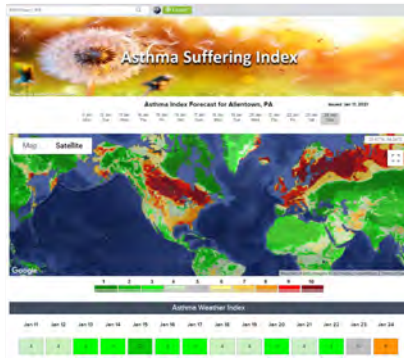


weathertrends360

18

## Free Tools to Anticipate Suffering Ahead

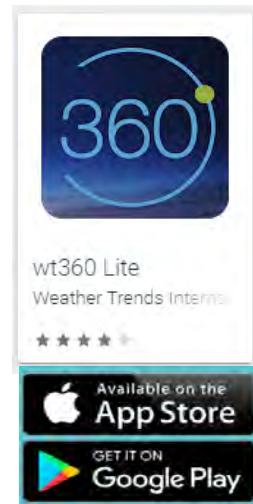
### 14-Day Short Range Asthma Suffering Index and Year-Ahead Weather



[www.weathertrends360.com/Asthma](http://www.weathertrends360.com/Asthma)



[www.weathertrends360.com/Planner](http://www.weathertrends360.com/Planner)

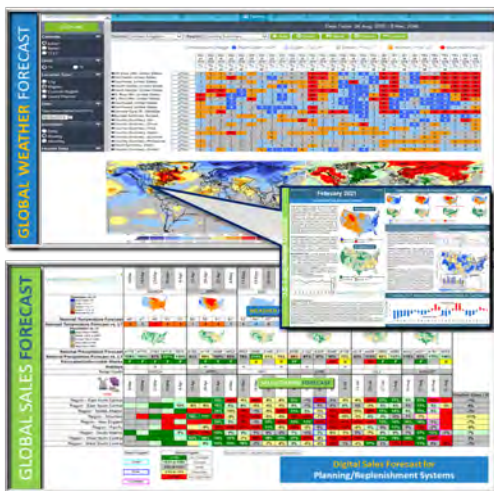


weathertrends360

19

## Business Solutions for the Medical Industry

weather and sales forecast everywhere on Earth



- Weather and sales forecasts by mile, by week A **YEAR-AHEAD** everywhere on Earth.
- **Power of 1° Degree Predictive Analytics** based on your drug/sales data, emergency room visits, any metric. Understand what weather is influencing your business.
- **Short range** tactical planning tools out 14 days.
- **Data feeds** to for your existing planning and forecasting systems.
- **Proactive not Reactive** planning.

weathertrends360

20

## TIME FOR QUESTIONS



Record your questions in the question box  
We'll get to as many as we can!

21

### Next Webinar

**COVID and Your Family:  
Variants, Vaccines and Risks  
Based on Age Groups**

Thursday, July 22<sup>nd</sup>, 2021

4:00 PM ET

Register at  
[allergyasthmanetwork.org](https://allergyasthmanetwork.org) –  
News - Webinars



22



## Weather Forecasts and High Impact Allergy and Asthma Suffering

Weather Trends 360 CEO Captain Bill Kirk