



Financial Weather Risk in the Economy: Tools to Identify It... Measure It ... and the Necessity to Manage It...

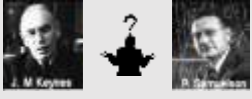
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When the Facts Change, I Change My Mind. What do you do, Sir?




- People and their decisions are wired for binary decisions
 - Yes/No, On/Off, Will/Will Not, etc.
 - Such traits do not go well with the spectrum of "maybe"
- As our science/modeling advances, so too needs our communication style
 - We cannot expect the community's needs/desires to adapt to us
 - We need to adapt to the community's needs/desires – i.e. "Know/Embrace the Audience"

We are presented with the challenge AND the opportunity of managing the forecast and managing the information

Intelligence Advanced Research Projects Activity (IARPA)


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Elements of Risk



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Manage



- The optimal path should be based on information
 - More data does not always provide more clarity or certainty
- Data/Information (weather) is often highly perishable...need to manage the "perishability" of decisions based on such
- Recognize one person's risk is another person's opportunity
 - This is true in the financial/market world and the military/IC world
 - Understand the audience and address their position
 - Communication of the forecast can often enhance the "management" of risk even more so than the base skill of the forecast

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Weather Risk – Open Source Data Harvest



Word cloud - an image composed of words used in a particular text or subject, in which the size of each word indicates its frequency or importance.

- Twitter Firehouse & StockTwits API
- Past Januarys, Aprils, Julys & Octobers
- Equities listed on NYSE, NASDAQ, London
- Military/IC accounts
- Filters using "weather risk", "climate risk", "environmental risk" and the -v/-5 words (ignoring "grammar words")

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Talking Points

- "Risk" has lots of definitions for lots of different verticals, users, organizations
- More data is not necessarily always helpful
 - Big Data is NOT a selling point anymore
 - Cloud; AI, NN, DS, ML, QuantStats, Predictive Analytics; Blah Blah Blah
 - Users are becoming more sophisticated
- Science needs to extend into "Solutions" and "Information Delivery that Matters"
 - Recognize that most people don't have time for a weather forecast
 - They want/need an action...and they don't want to wait for it
 - Computers/Models are Improving...So must we...
- Provide the "Information Advantage"




Image Courtesy: Whitman Magazine

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Backup

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Forecast Perfectly...OR...Forecast Often...

**Wash/Rinse/Repeat
(or be perfect)**

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Identify

Red = satellites
Blue = discarded rocket material
Grey = orbit debris

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Measure

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Expanded Capabilities and Vertical Systems Integration

MDA Information Systems

- Identify the best sensors, data, algorithms, analytics, tools, and systems for the specific problem
- Transform data into essential information
 - Information products, maps, analysis, images, reports
- Provide essential information to decision makers
 - National security professionals and warfighters
 - Commodity traders
 - Agricultural consultants and growers
 - Energy companies

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MDA Information Systems LLC – The Business

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MDA Corporate – Communications

Billions of people around the world depend on MDA-built services and subsystems every day.

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MDA Corporate – Surveillance and Intelligence

A world-class supplier of space-based and airborne surveillance solutions, satellite ground stations, and associated geospatial information services

- Value Added Information Services:**
 - MDA provides geospatial information and modeling services derived from satellite imagery and other sources for customers in defense, aviation, transportation, agriculture, energy and mining, and other sectors.
- Intelligence Information Services:**
 - MDA provides intelligence gathering products in its geospatial information and image collection areas in the US, NATO, and other allied and friendly governmental systems.
- Satellite Data Distribution:**
 - MDA provides and maintains commercial data distribution for the DISCOVERD3 system. MDA is one of the largest satellite data distribution providers worldwide.

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Weather Services within MDA

MDA has a proven record of transitioning government programs to commercial success

DoD, IC, USA, DOE, etc. → Commodity traders, Oil and Gas companies, Agri-businesses, Utilities, Insurers/Reinsurers, and Foreign Governments/Agencies

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Optimized Monitoring and Forecasts Produced for Decision Support

MDA utilizes a multi-model ensemble collecting forecast data from all major weather research agencies and creating a global skill weighted solution for all points on the globe

- >200 million database read/writes per day
- >100 GB/day of "flat map" level 2 and 3 type product(s) output
 - Majority of images are created and distributed via variety of product types using web services with low latency (~25ms)
- Product types defined as:
 - Web Applications
 - Data Services
 - Info Products
- >1,000,000 "flat files" provided via FTP, API (SOAP & REST), AWS s3
- >5,000,000,000 (5 trillion) points of data consumed/produced every day

Raw data & Derived analytics delivered via various vehicles

- Web/Data Services (JSON, TXT, CSV, WMS, etc.)
- Web apps (desktop, mobile)
- Information Reports (PDFs)
- Alerts/Notifications (email, SMS, Pop-ups)

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Product/Data Hosting

WEATHER DESK

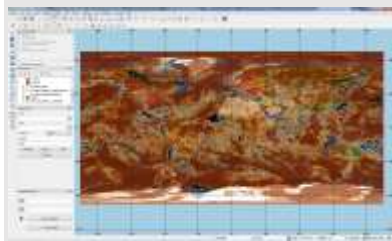
- Speed
- Serious Focus on UI/UX
- Superior Platform for Ongoing Development
- Analytics
- Stability and Security
- Customer Ownership

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Customers, Products and Services

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CloudCast – Characterization, Identification, and Forecasting



- Started as USG project via Digital Globe (Space Imaging)
- Evolved into supporting "unclass" version for commercial users and Foreign Governments
- Potential for increased commercial opportunities with small sat explosion

CloudCast Specs

- Global Capability
- Multi-model/ensemble
- Plug & Play observation(s) input
- Hourly forecasts to 240hr
- Probabilistic forecasts/distribution
- Spatial resolutions < 1km
- Data feeds and web apps

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Theater Weather Imagery



- Global capability
- 24/7/365 support staff of MetOps
- Deep/robust staff of Sci/Eng for MetDev & GeoDev

- Solutions provided via
 - Webservices
 - Web apps
 - Information Reports

Data built into Information and Delivering the "Information Advantage"

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