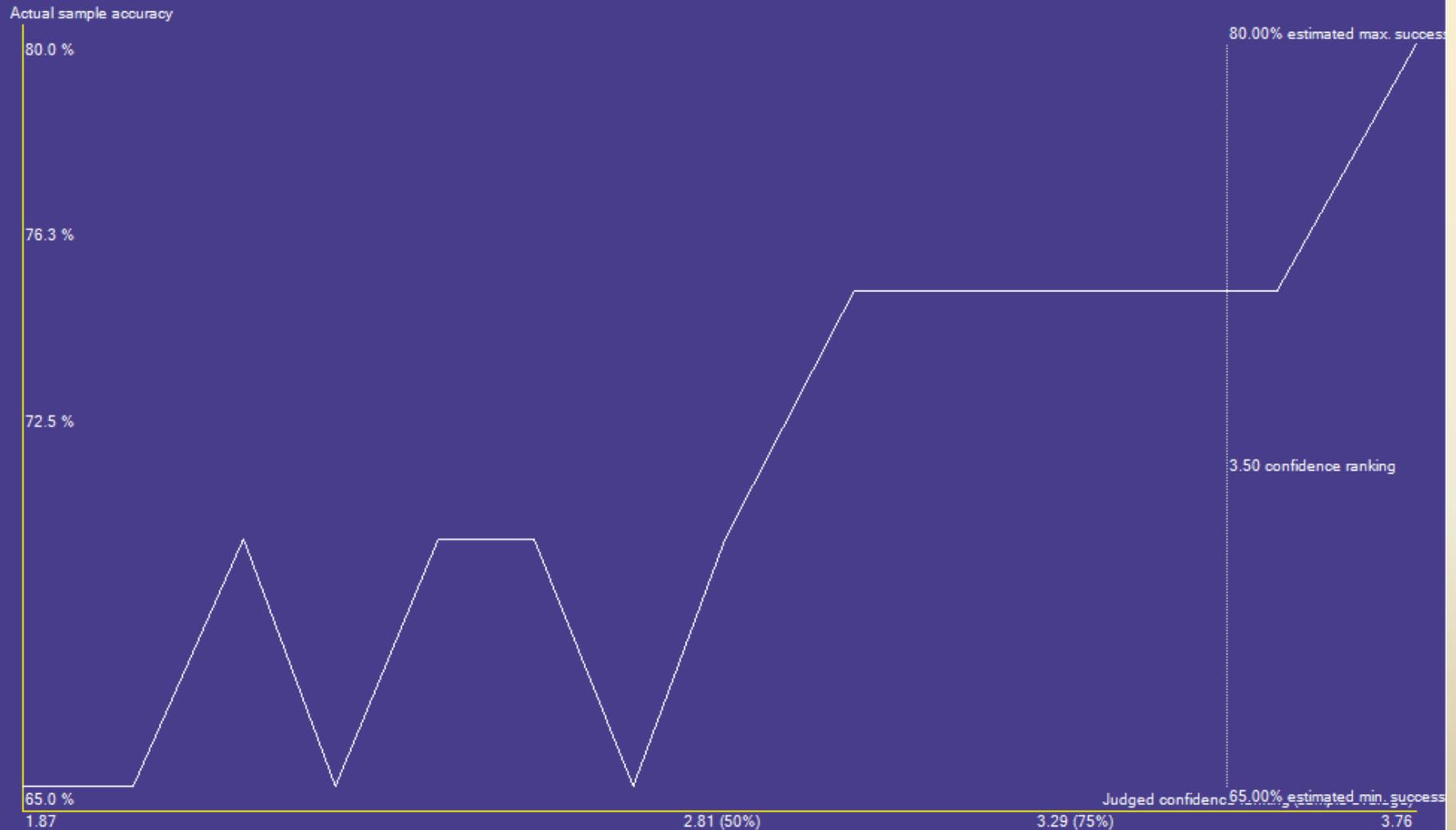# Aiming for 80% - a probability scalar field research plan

What is a scalar field ?

- A scalar field is a real or complex valued function over some region U of Euclidean space.

- In 1D it is rendered as a graph (example: humidity as a function of temperature, or accuracy as a function of solar wind speed)

- In 2D it looks like a temperature map that depends on 2 variables.

- In 3D it looks like a hologram depending on 3 variables. The goal is to find the best 3D probability scalar field that gives us the areas of high probability (over 80%) for ARV projects.

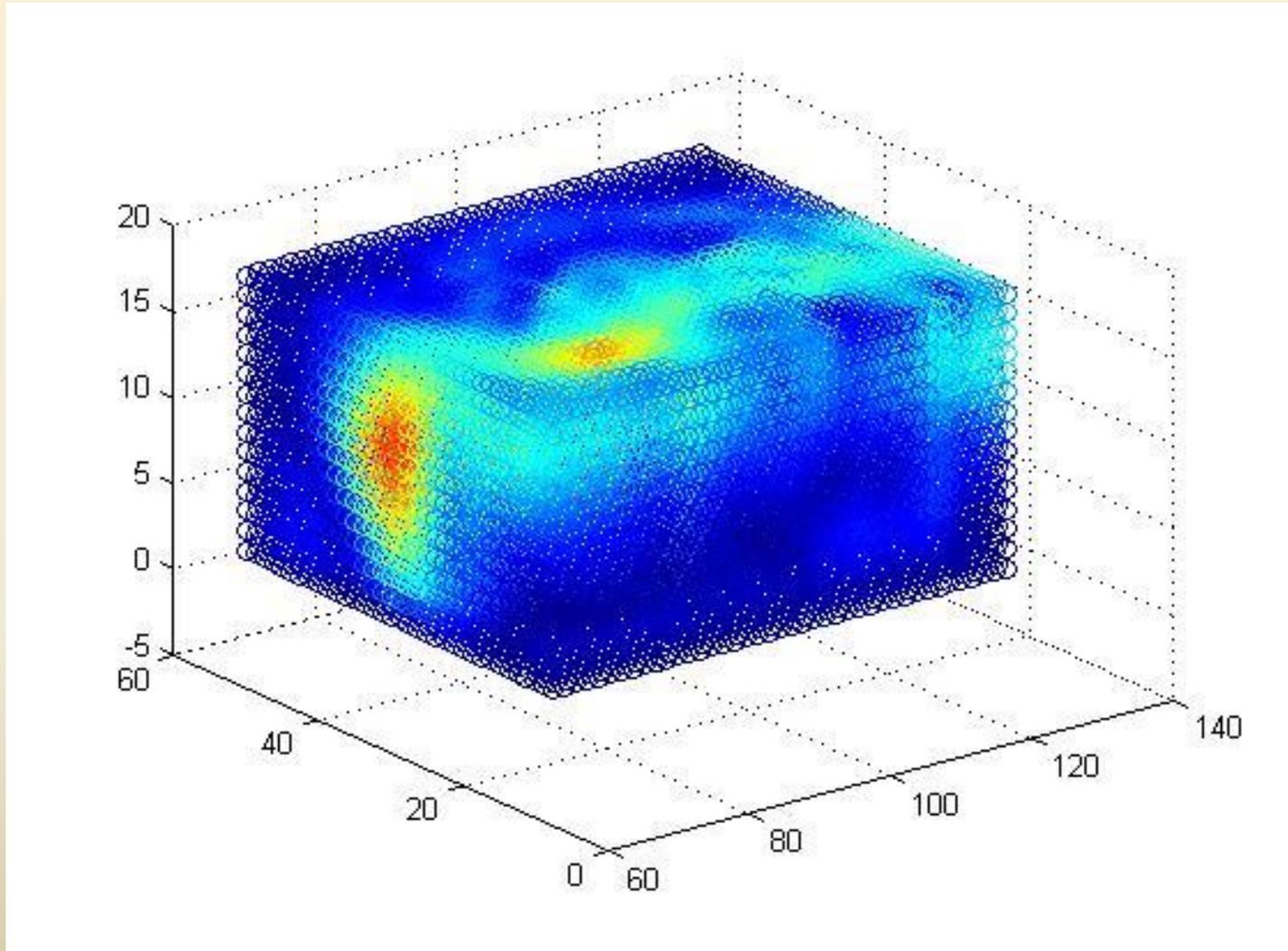# 1D scalar fields – any 1D function over an interval

2D scalar field example
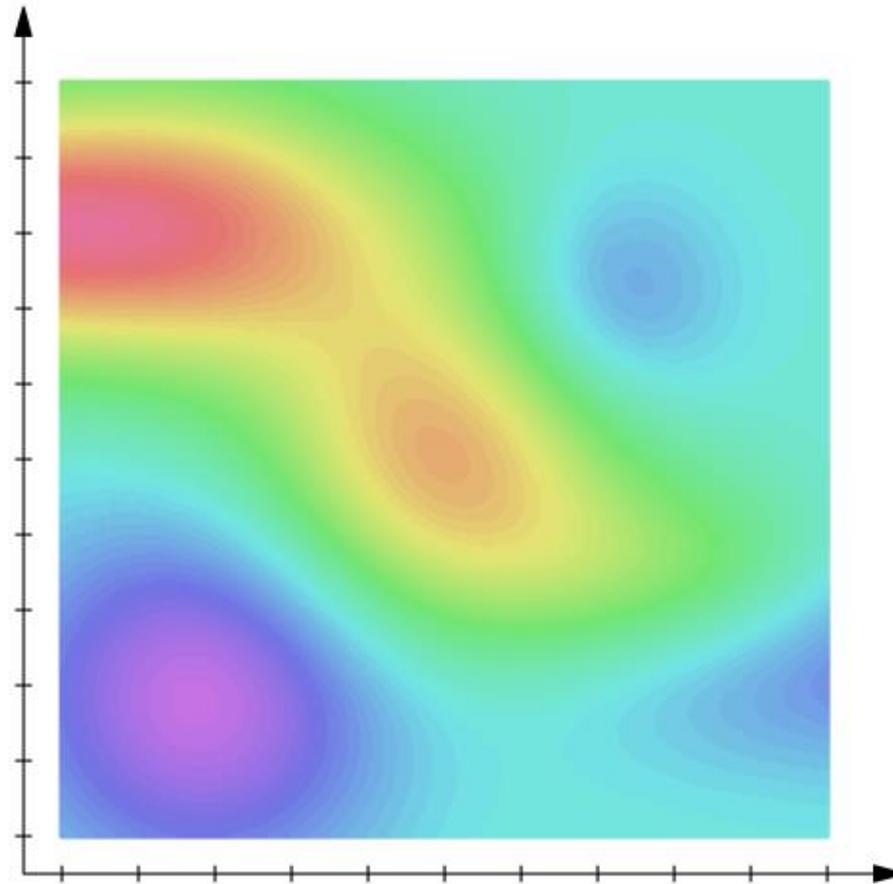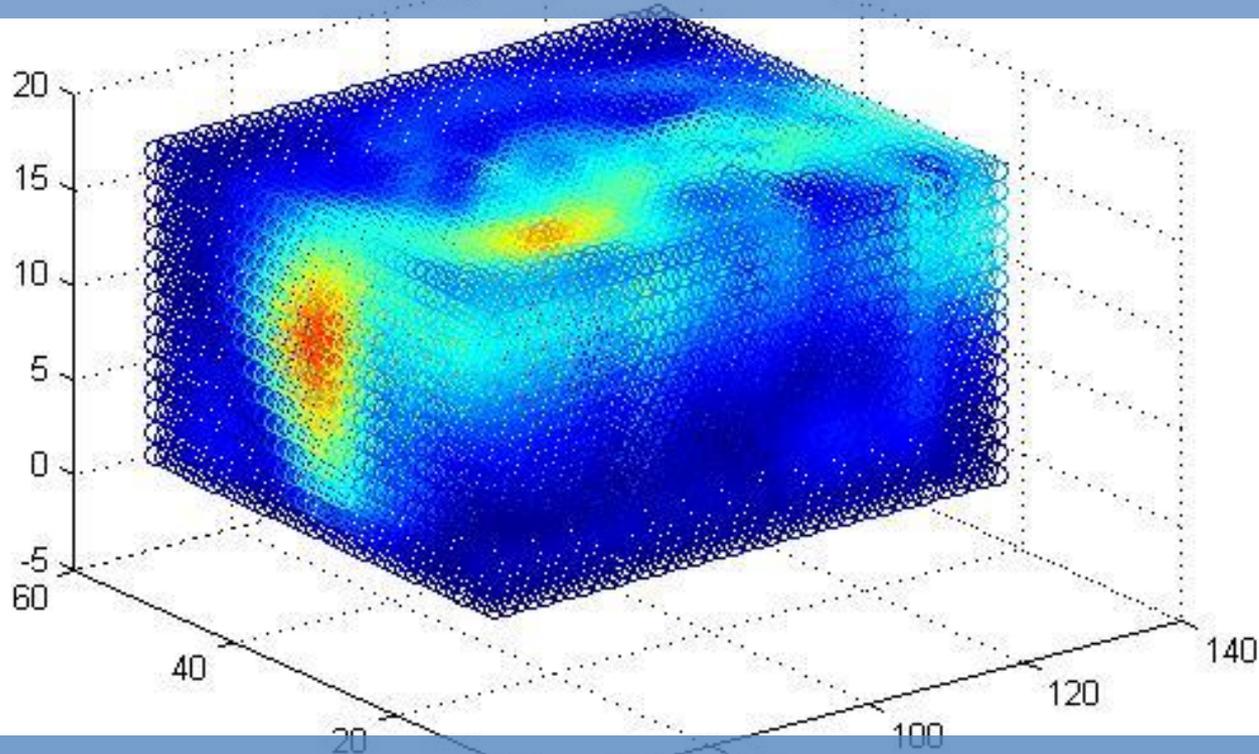
A 3D scalar field

Source: http://1.bp.blogspot.com/-WKImdqNyZ0w/Ued-QBX6MwI/AAAAAAAAGLw/1P8iTcQINHM/s1600/Fig1.jpg

Research goal

Find 3 axes that best isolate areas of high probability for multiple trial projects (>=80%) Any projects will have 3D field coordinates **before** the event and will contribute with a 0/1 value to the field after the event. (it will 'brighten up' the field – Hit or darken it - Miss). Result: a **probability 'hologram' that will be queried** for any ongoing project based on past data.

Mouse moved at the current project's (average solar wind speed, CR divergence and number of trials would give the probability as given by the voxel in which the mouse resides

Scalar field design

- **First step :** Analyze the predictive power of all candidate axes relative to the probability of success:
  - CR divergence
  - Number of trials – extended to the real positive axis to make the domain U of the field a compact set and to allow averaging (i.e to allow 3.5 avg number of trials for a sample of 20 projects for example)
  - Solar wind speed (Average solar wind speed of all trials in an ARV project)
  - Each is analyzed separately as one or more simple graphs, as has been done before

Scalar field design

- **Step 2**: Pick the 3 most promising axes in terms of mutual information analysis (numerical) or visual inspection – which ones provide closest correlation or pattern isolation relative to the 80% accuracy threshold ?

- My top 3 favourites are:
  - Number of trials – as being backed by good theoretical support in the Weak Law of Large Numbers and in existing ARV and ESP research
  - CR divergence – the indirect absolute quantitative measure of skewness of the probability density function of the future event, as also suggested in Greg Kolodziejczyk's paper
  - Solar Wind speed around the 450 km/s threshold

Scalar field design

- 2D scalar fields (probability maps) evaluation
  - Build three 2D scalar fields by combining each pairs of the 2 coordinates. Values should be given by the probability of success of all projects that fall within a square of the 2D plot
  - K nearest neighbours: for each point in the scalar field, the value should be a weighed sum of all project accuracies that are closest to that point. The accuracy should be a fuzzy estimate
  - Keep K fixed and create all 3 2D scalar fields

Scalar field design

- Step 3 – Build the 3D scalar field
  - Bring together all 3 axes and create a 3D K-Nearest Neighbour algorithm that evaluates the probability of success in a similar manner as with 2D data
- Step 4 – Run wagering simulations
  - On all 3 1-dimensional scalar fields
  - On all 3 2-dimensional scalar fields
  - On the final 3D scalar field
  - By keeping K constant and using Kelly wagering as a function of the probability estimate of each
  - Show comparisons. 2D scalar field performance should outperform 1D and 3D should outperform all.

Back to the candidate axes

- Axis 1 : Number of trials
- Axis 2 : CR divergence
- Axis 3 : Solar wind speed

- Existing evidence of effect size versus each axis – (what QH calls 'accuracy frontier') – it's just 2D correlogram plot (!)

Some of Greg's CR divergence data – curves through the probability field (solar wind speed unknown)
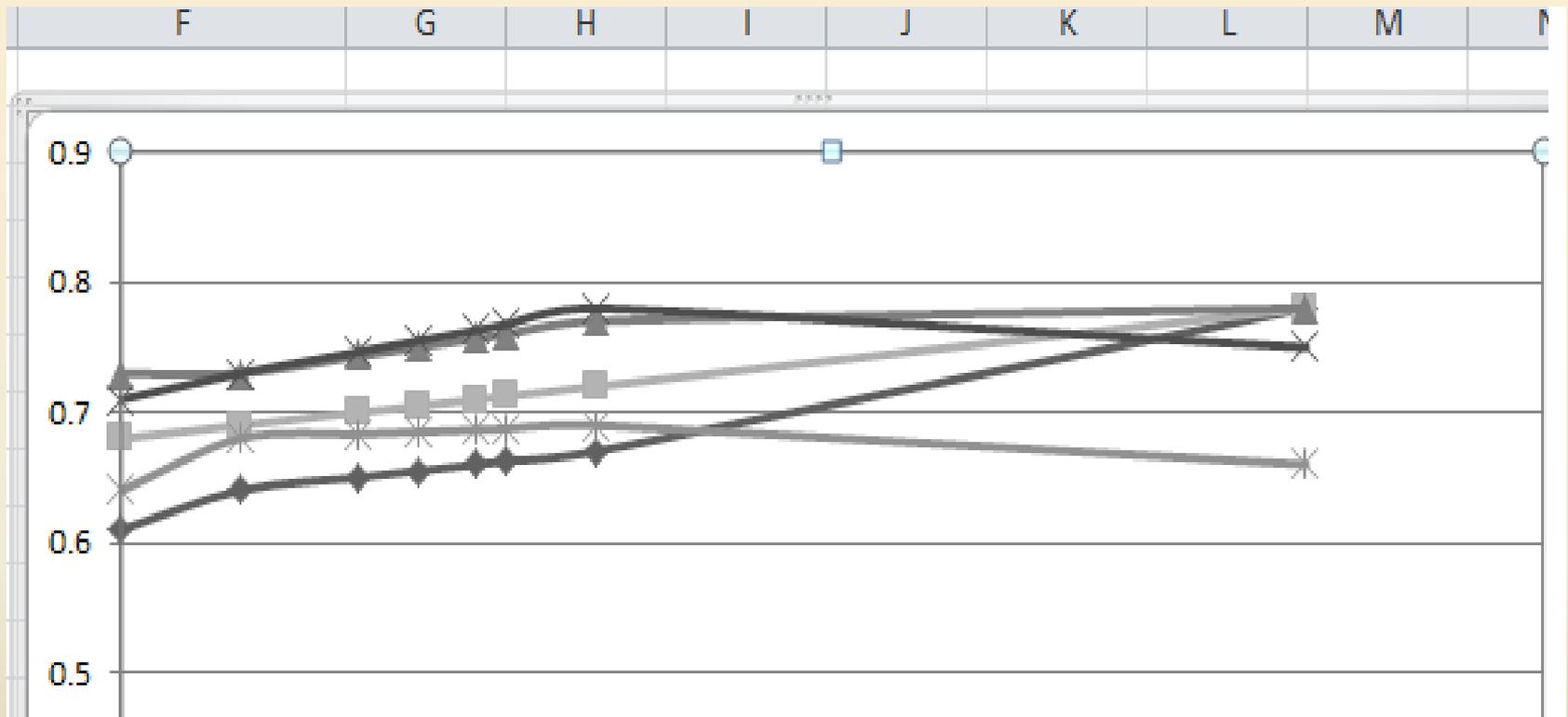

Y: projects accuracy as a function of absolute CR divergence

Different minimum number of trials for each curve – together they sample 2 dimensions of the field. There seems to be an optimal CR divergence of 4 for an optimum of 30 trials

These are plots along CR divergence axis for various minimum trials

When I average the results from trials conducted when solar wind speed is high, psi performance is low. When I averag
dramatically. The following link is a graph that shows the effect size from 2 years worth of ARV trials (1300 trials) com
increase (left to right).

ARV effect vs Solar Wind Speed (300 ma)
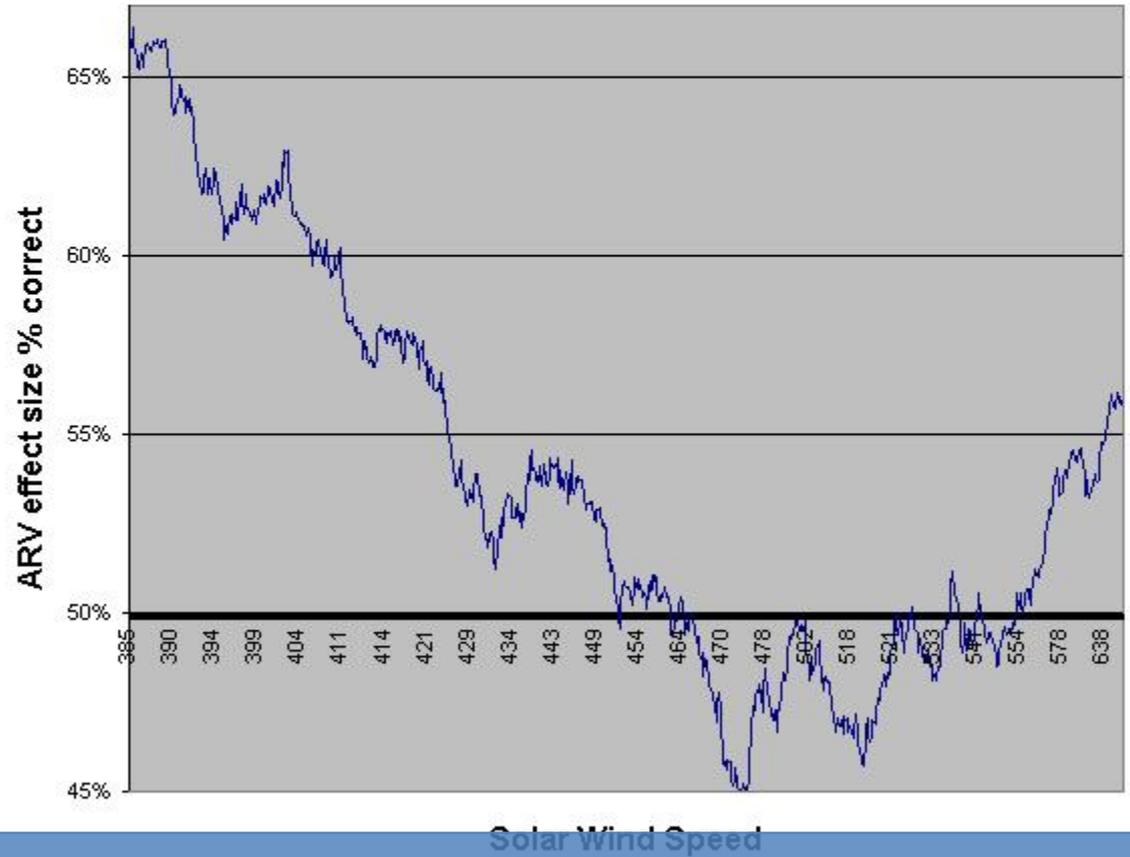
Greg's correlation vs Solar Wind speed

Greg's research shows us all 3 dimensions of the scalar field

- He shows us the accuracy as a function of CR divergence and number of trials in table 2 of the ARV paper

- He shows us the correlation of accuracy vs solar wind speed

- He didn't show us the combined scalar field of all 3

- Building it is called **hypothesis boosting** and comes from Machine Learning !

My analysis of the CR divergence

- Limited number of projects
- I used a permutation technique to derive 3 trial and 2 trial 'virtual' projects from my existing set
- Good correlation between CR divergence and expected probability of success
- Still need more data to paint a more accurate picture of the power of the CR divergence

Analysis of my CR divergence data
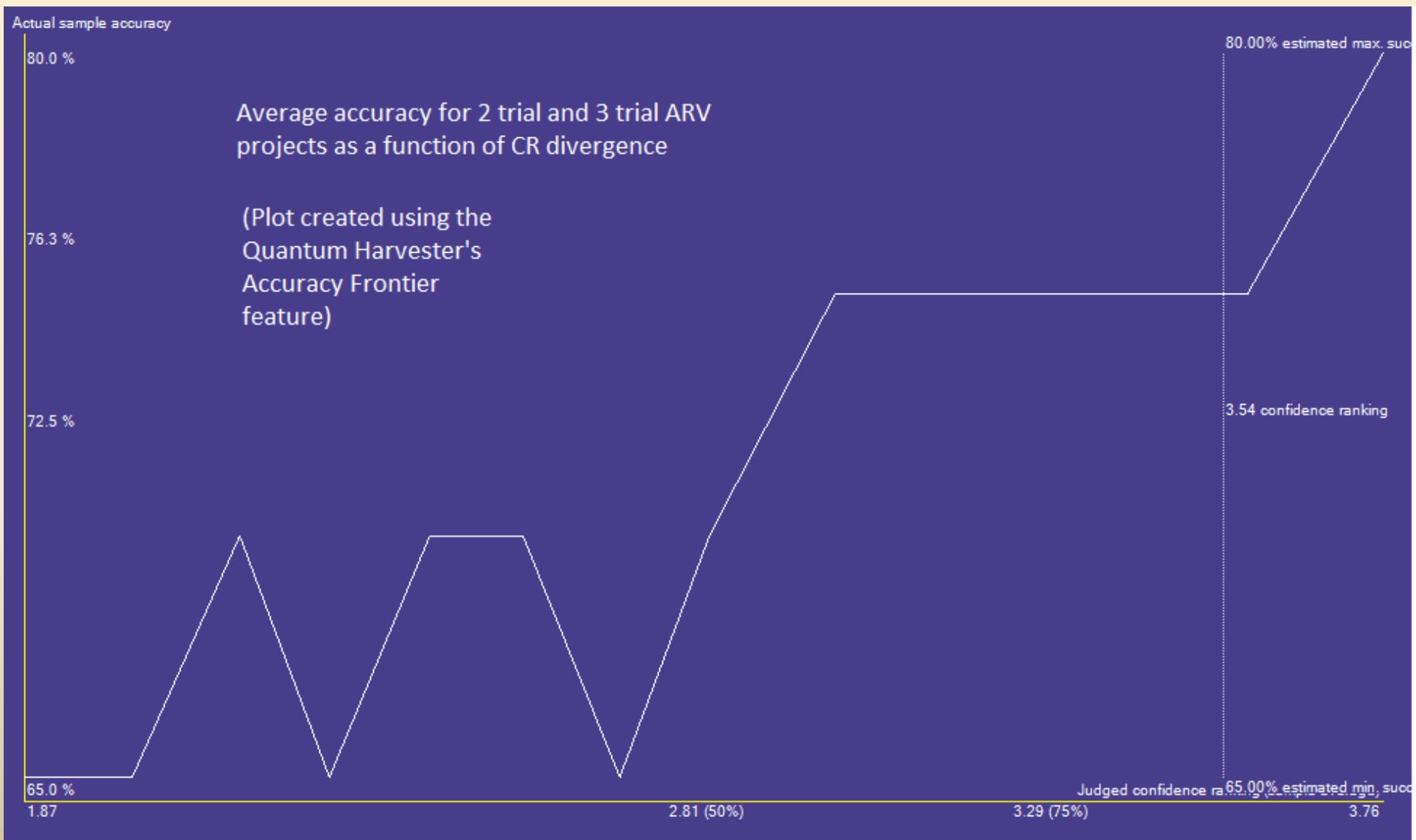
Final thoughts

- 3D scalar field as a predictor is inspired from a machine learning technique called Hypothesis boosting – using simple classifiers (in our case predictors), by combining them together – can we obtain a better one ?

- Quantum Harvester's Accuracy Frontier feature analyzes the predictive power of each scalar field axis.

- Development of QH will be focused exclusively on ease of use and the analysis and design of the field, from 1D (Accuracy frontier feature) to 2D sections and the building of the 3D probability field (hologram) itself ☺

- http://www.remote-viewing.com/ARVupdateOct99.html

Data acquisition requirements

- Multiple trial projects are required:
    - Each transcript should have a date tag with the date and time of viewing or a solar wind speed tag at the time of viewing, or both, just like Greg stored the latter in his database
    - 2,3,4,..N trial projects should be recorded
    - For each project, the CR divergence should be calculated
    - Each project will be displayed using its 3D field coordinates
    - The probability field will be a continuous interpolation of all data in a 3D cube

Data acquisition requirements

- At least 20 multiple trial ARV projects, each 30 trials each, so at least 600 transcripts.

Existing evidence seems to suggest that with hypothesis boosting, best performance might be achieved around the following area of the scalar field:

- 30 trials (15 1ARV pairs of transcripts) and

- Low solar wind speed
(or night – zero radiation) RV
and

- CR Divergence of **at least** 4 for a scale of .1 to 4, probably 7 for the Targ Scale and probably 14 for 1ARV. **I will use >=14** because QH adds to 7 scale CRs for each side.

- Q: How about adding more dimensions ?
- A: Sure, but rank them in decreasing order of predictive power, then pick the first three as an initial scalar field and run a wagering simulation as a <u>baseline</u>, and then:
  - Take the next one (the fourth dimension)
  - Run Principal component analysis and get the top 3 axes x', y', z' of the PCA
  - Run the wagering simulation in the PCA step : calculate all project coordinates in the (x',y',z') coordinate system
  - Add the next one to the original 4 axes, so make it 5
  - Run PCA again and project the 5 dimensions on the 3 PCA axes, always the top 3 PCA axes !
  - Run wagering simulation again
  - Stop adding things and running PCA until the peformance stops increasing

- One should never use too many dimensions when there is little data

- Principal Component Analysis finds the best subspace for you, so if you have sight, smell, noise, CR divergence, solar wind speed, what it will do for you is create a set of PCA axes and you will only pick the top 2 or top 3 to keep the number of dimensions low.

- A scalar field can be created using any set of axes, but for simplicity's sake, keep them simple as in CR divergence, solar wind speed and number of trials, no need to complicate things to begin with if we could get there at 80% right from the start.