

# $\delta^2\text{H}$

## INFO

World  $\delta^2\text{H}$  distribution, 1975 to 1984  
spatial reference EPSG:5326 - WGS84 - angles in decimal deg  
time in years, resolution = 1 yr  
data from IAEA GNIP - Global Network of Isotopes in Precipitation  
url <https://nucleus.iaea.org/Pages/GNIPR.aspx>

### Timescape description

1152 Source events  
120000 Target events  
Null target events count is 45742  
Model parameters:  
Algorithm: SIDW, Neighborhood: nearest 10  
Metric: SPHERE R=6378100.0  
Time to space conversion factor C=1000.0  
Causal cone is periodic with K=300.0, KPERIOD 1.0  
tip angle=3.13 rad, Omega=6.26 srads  
envelope coverage is 100% of half-plane  
T from 1980.0 to 1990.0 in 20 sheets: Tk, k=0...19  
X from -128.0 to 127.99 in 120 rows: Xi, i=0...119  
Y from -75.0 to 75.0 in 50 cells: Yj, j=0...49  
User-defined parameters:  
MYPAR\_SQMASS=2.0  
Target events voxel size (each):  
dT=0.5 (time units) or 500.0 (length units)  
dX=2.13, dY=3.0, Area=6.4  
Volume=3199.87 (length<sup>3</sup> units)

## SOURCE

1152 source events found within

1975.0 < T < 1984.0  
-177.37 < X < 173.28  
-75.58 < Y < 69.77  
-194.3 < VAL < 38.1

Metric:SPHERE

c = 1000.0, k = 300.0

The causal cone is periodic with k period = 1.0

Trend of VAL vs T:

OLS Regression Results

```
=====
Dep. Variable:          y      R-squared:          0.001
Model:                  OLS    Adj. R-squared:      -0.000
Method:                  Least Squares    F-statistic:      0.8217
Date:                    Fri, 20 Mar 2020    Prob (F-statistic):    0.365
Time:                    20:23:31    Log-Likelihood:      -5720.6
No. Observations:        1152    AIC:                  1.145e+04
Df Residuals:            1150    BIC:                  1.146e+04
Df Model:                 1
Covariance Type:         nonrobust
=====
               coef      std err          t      P>|t|      [0.025      0.975]
-----
const         -693.5182    708.319     -0.979     0.328    -2083.260     696.224
x1              0.3243     0.358      0.906     0.365     -0.378      1.026
=====
Omnibus:                 42.041    Durbin-Watson:          0.319
Prob(Omnibus):            0.000    Jarque-Bera (JB):        46.047
Skew:                     -0.490    Prob(JB):                 1.00e-10
Kurtosis:                  3.019    Cond. No.                 1.37e+06
=====
```

```

Trend of VAL vs X:                                OLS Regression Results
=====
Dep. Variable:                y      R-squared:                0.011
Model:                        OLS    Adj. R-squared:            0.010
Method:                        Least Squares    F-statistic:            13.19
Date:                          Fri, 20 Mar 2020    Prob (F-statistic):      0.000294
Time:                          20:23:31    Log-Likelihood:          -5714.5
No. Observations:              1152    AIC:                     1.143e+04
Df Residuals:                  1150    BIC:                     1.144e+04
Df Model:                      1
Covariance Type:               nonrobust
=====
               coef      std err          t      P>|t|      [0.025      0.975]
-----
const          -51.8017      1.023     -50.635      0.000     -53.809     -49.794
x1              0.0546      0.015      3.631      0.000      0.025      0.084
=====
Omnibus:                33.086    Durbin-Watson:           0.323
Prob(Omnibus):           0.000    Jarque-Bera (JB):        35.455
Skew:                    -0.430    Prob(JB):                 2.00e-08
Kurtosis:                3.009    Cond. No.                 68.3
=====

```

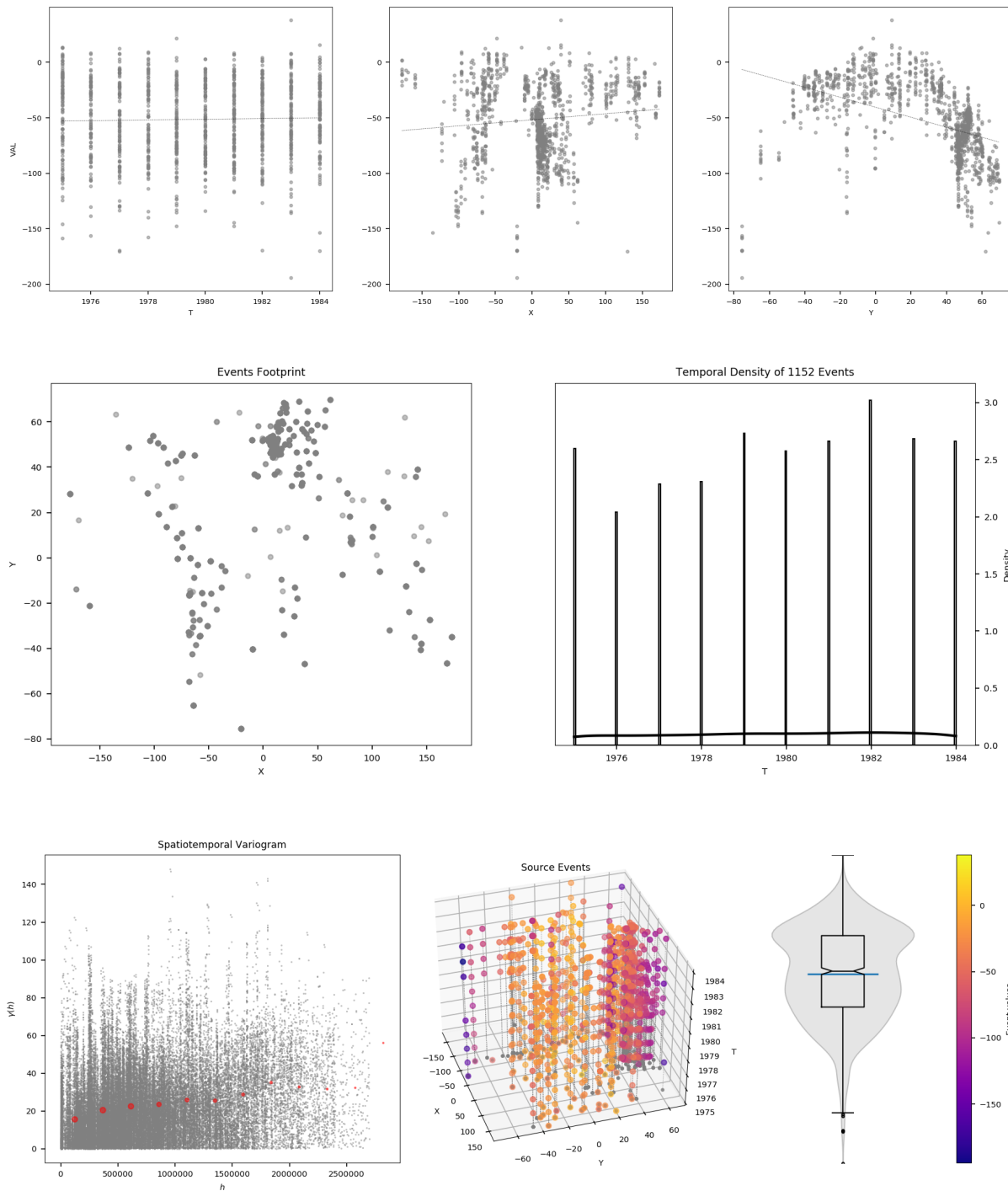
```

Trend of VAL vs Y:                                OLS Regression Results
=====
Dep. Variable:                y      R-squared:                0.201
Model:                        OLS    Adj. R-squared:            0.200
Method:                        Least Squares    F-statistic:            289.0
Date:                          Fri, 20 Mar 2020    Prob (F-statistic):      5.33e-58
Time:                          20:23:31    Log-Likelihood:          -5591.9
No. Observations:              1152    AIC:                     1.119e+04
Df Residuals:                  1150    BIC:                     1.120e+04
Df Model:                      1
Covariance Type:               nonrobust
=====
               coef      std err          t      P>|t|      [0.025      0.975]
-----
const          -40.4932      1.119     -36.198      0.000     -42.688     -38.298
x1             -0.4506      0.027     -17.001      0.000     -0.503     -0.399
=====
Omnibus:                314.798    Durbin-Watson:           0.379
Prob(Omnibus):           0.000    Jarque-Bera (JB):        1193.499
Skew:                    -1.272    Prob(JB):                 6.84e-260
Kurtosis:                7.289    Cond. No.                 51.6
=====

```

#### Warnings:

- [1] Standard Errors assume that the covariance matrix of the errors is correctly specified.
- [2] The condition number is large, 1.37e+06. This might indicate that there are strong multicollinearity or other numerical problems.



## Variogram

h, gamma

```
122657.99956542016,15.534453096704055
367973.9986962605,20.410559933637455
613289.9978271008,22.420119144327145
858605.9969579411,23.442567196928078
1103921.9960887814,25.791674925669017
1349237.9952196218,25.438522219300555
1594553.9943504622,28.678556111508243
1839869.9934813024,35.01487465181061
2085185.9926121428,32.679473206176176
2330501.991742983,31.552480000000006
2575817.9908738234,32.21282051282053
2821133.990004664,56.0
```