Anomalies
 

Positive use of Anomalies:

* Helps Scientist to constantly alert about cosmic changes if not found normal. E.g. WOW! Signal is an anomaly.
* Detection of suspicious activity in Financial transaction and network intrusion etc.

Negative of Anomalies:

* Affects the interpretation of the data
* Increases the processing time.

Grubb’s test to detect an outlier:

Suspect the following Hypothesis:

|  |  |
| --- | --- |
| H0: | There are no outliers in the data set |
| Ha: | There is exactly one outlier in the data set |
| Test Statistic: | The Grubbs' test statistic is defined as: |

The problem with Grubbs test is that it identifies one outlier at time which in large data can become cumbersome.

Hence, a more robust way to detect these anomalies was required: (S-H\_ESD builds upon the Generalized ESD test)

* Helps in identifying local as well as Global outliers
* Helps in identifying negative and positive anomalies

Makes use of Median instead of the trend.

Residual = Time-series - Median – Seasonality

Along with the above change, it includes a penalising combination parameter of Beta and degree.