Erratum

Where it was written $(0 \leq \boldsymbol{\varphi} \leq 2\pi)$ should read $(0 \leq \boldsymbol{\varphi} \leq \pi)$. (See equation 14)

Robust confidence ellipsoid

The robust confidence ellipsoid is built from equation $\hat{\mu}_{rob} + \left(\sqrt{3 \cdot F_{3;(n-1);(1-\alpha)}}\right) \cdot U \cdot Q$ where $\hat{\mu}_{rob} = [\bar{x}_{rob} \quad \bar{y}_{rob} \quad \bar{z}_{rob}]$ is the vector of robust means, $F_{3;(n-1);(1-\alpha)}$ is the quantile of the Fisher-Snedecor distribution with 3 and $(n-1)$ degrees of freedom and confidence level of $(1-\alpha)$% and Q is the Cholesky decomposition of the robust variance-covariance matrix S_{rob}. Lastly, the $m \times 3$ matrix $U = [cos(\boldsymbol{\theta})sin(\boldsymbol{\varphi}) \quad sin(\boldsymbol{\theta})sin(\boldsymbol{\varphi}) \quad cos(\boldsymbol{\varphi})]$ is the sphere of radius 1 where $\boldsymbol{\theta} = [\theta_1 \quad \cdots \quad \theta_m]$ is a vector of size m $(0 \leq \boldsymbol{\theta} \leq 2\pi)$ and $\boldsymbol{\varphi} = [\varphi_1 \quad \cdots \quad \varphi_m]$ is a vector of size m $(0 \leq \boldsymbol{\varphi} \leq \pi)$.

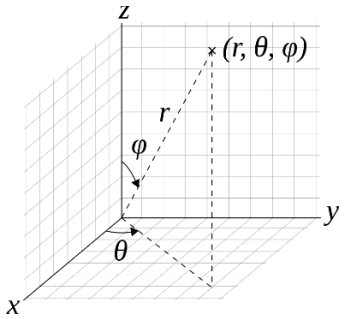

Figure 1. Spherical coordinates (r, θ, φ) are $x = r \cdot cos(\theta) \cdot sen(\varphi)$, $y = r \cdot sen(\theta) \cdot sen(\varphi)$ and $z = r \cdot cos(\varphi)$ where $r \in [0; \infty)$ is radial distance, $\theta \in [0; 2\pi)$ is polar angle and $\varphi \in [0; \pi)$ is azimuthal angle.