Método de Ajuste para Radiação de Onda Longa

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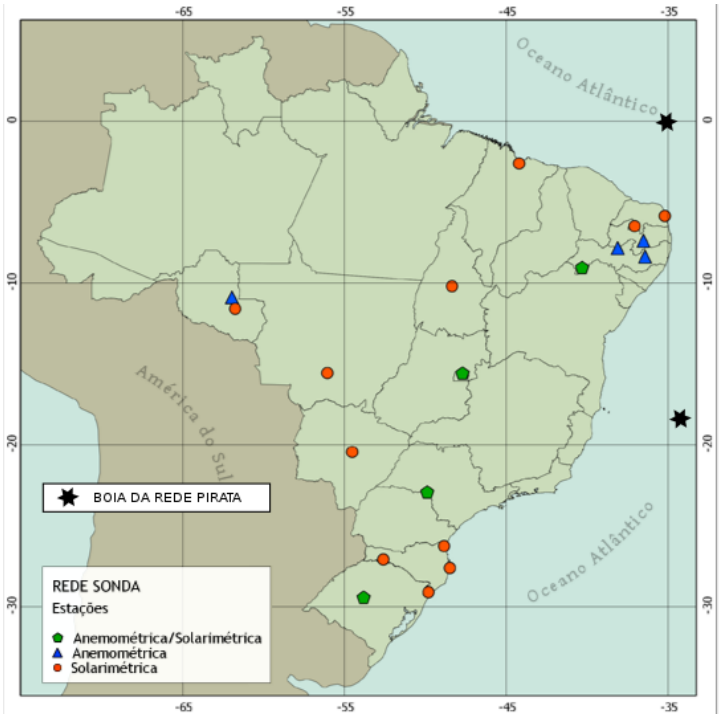
16 de setembro de 2013

Introdução

- Importância da Radiação de Onda Longa (ROL).
- Sistema de Organização Nacional de Dados Ambientais (Rede SONDA)



Introdução

- Equação usada no Pirgeometro (Philipona 1995)

$$E_l = \frac{U}{C}(1 + k_1 \sigma T_c^3) + k_2 \sigma T_c^4 - k_3 \sigma (T_d^4 - T_c^4)$$

- Situação dados de ROL.

Método

- Normas da Baseline Surface Radiation Network (BSRN)
- Procedimento de calibração usado no World Radiometer Center
- Método Mínimos Quadrados

Sistema de equações

$$\sum_{j=1}^{n}\{E_j^p-[\frac{U_j}{C}(1+k_1\sigma T_{bj}^3)+k_2\sigma T_{bj}^4-k_3\sigma(T_{dj}^4-T_{bj}^4)]\}(-\frac{U}{C}\sigma T_{bj}^3)=0$$

$$\sum_{j=1}^{n}\{E_j^p-[\frac{U_j}{C}(1+k_1\sigma T_{bj}^3)+k_2\sigma T_{bj}^4-k_3\sigma(T_{dj}^4-T_{bj}^4)]\}(-\sigma T_{bj}^4)=0$$

$$\sum_{j=1}^{n}\{E_j^p-[\frac{U_j}{C}(1+k_1\sigma T_{bj}^3)+k_2\sigma T_{bj}^4-k_3\sigma(T_{dj}^4-T_{bj}^4)]\}$$

$$(-\sigma[T_{dj}^4-T_{bj}^4])=0$$

Experimento

Figura: aparato

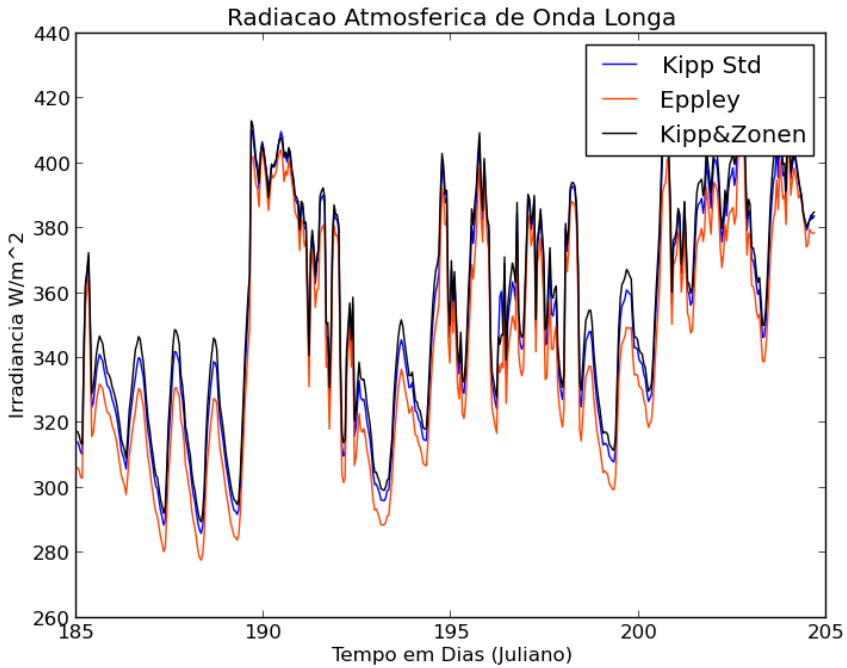
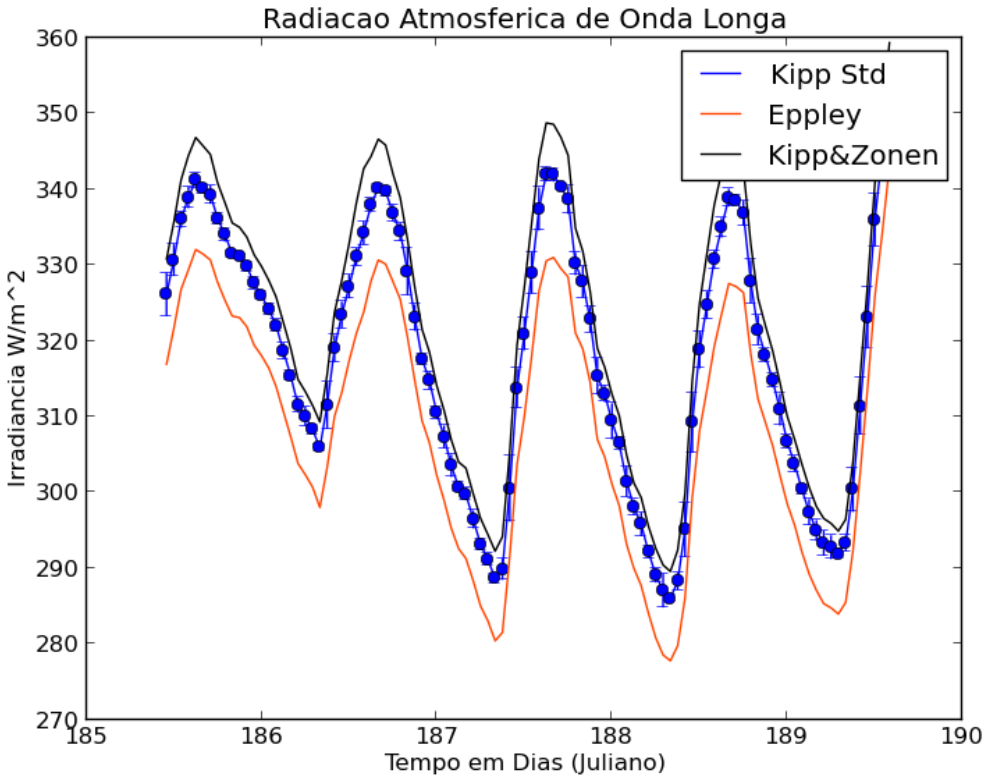


Figura: de 4/7/13 a 24/7/13

Período escolhido



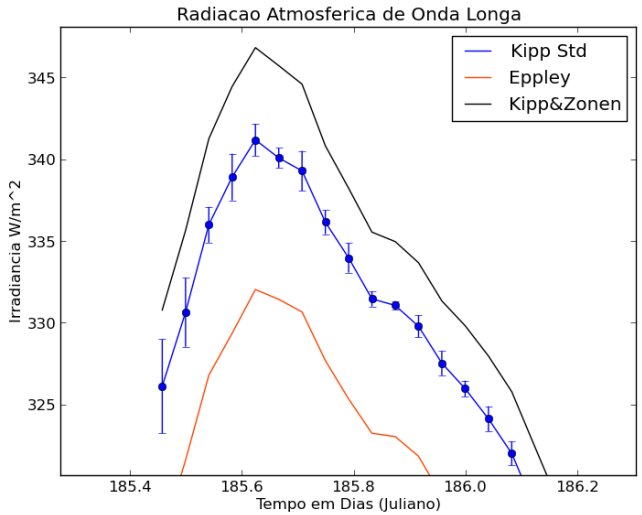
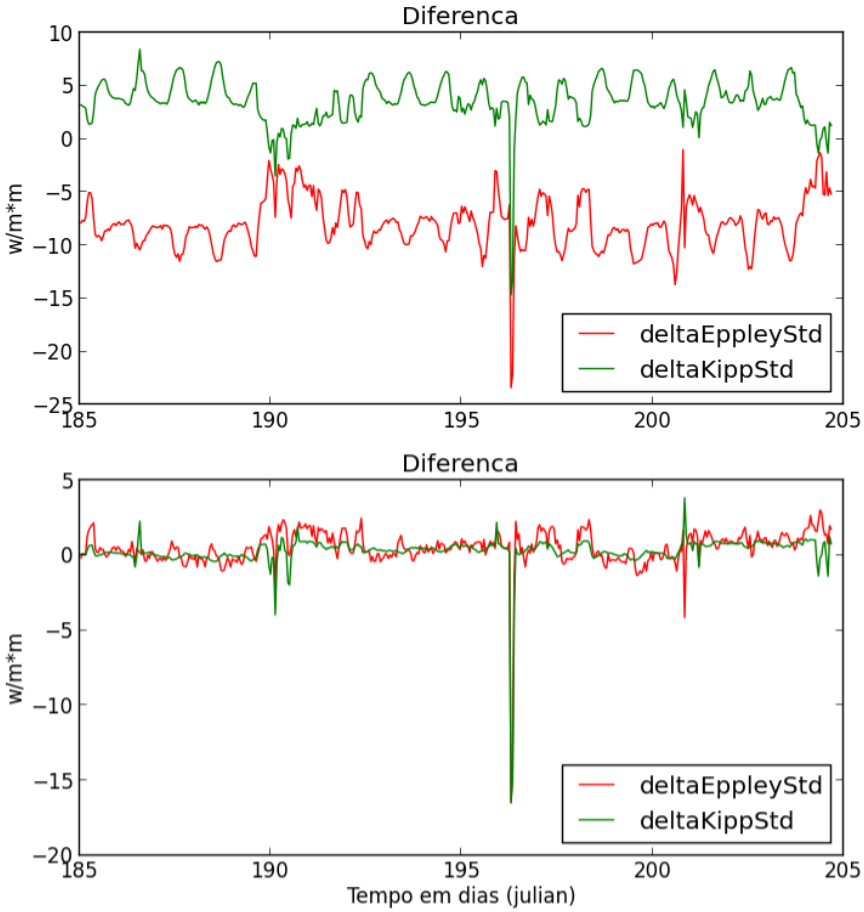


Figura: de 4/7/13 a 9/7/13

Resultados



Sensor	k_s anteriores		
	k_1	k_2	k_3
Eppley	0.0530	1.0000	3.6500
Kipp		1.0000	

Sensor	k_s calculados		
	k_1	k_2	k_3
Eppley	0.0223	1.0163	2.4833
Kipp	0.0382	1.0008	

Períodos estáveis de análise

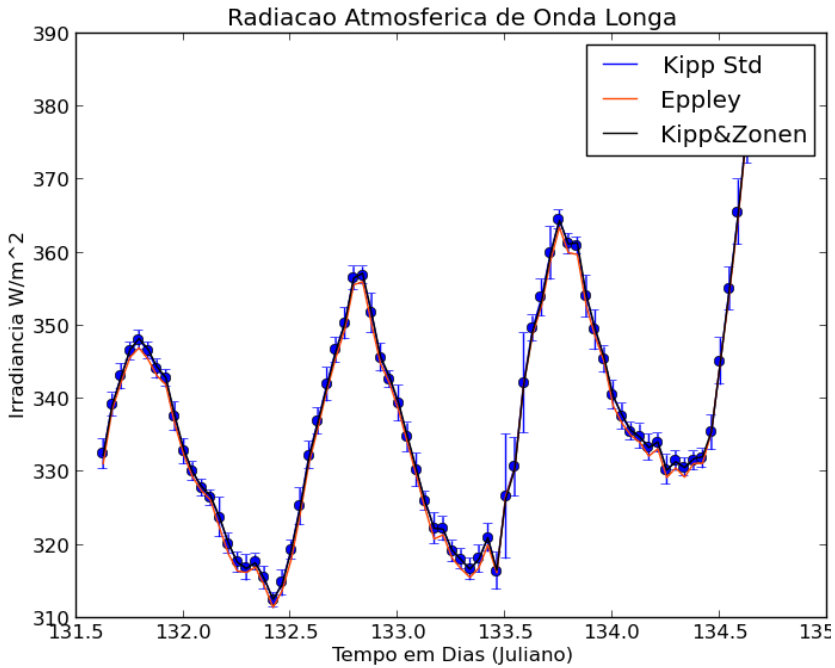


Figura: a) de 11/5/13 a 15/5/13

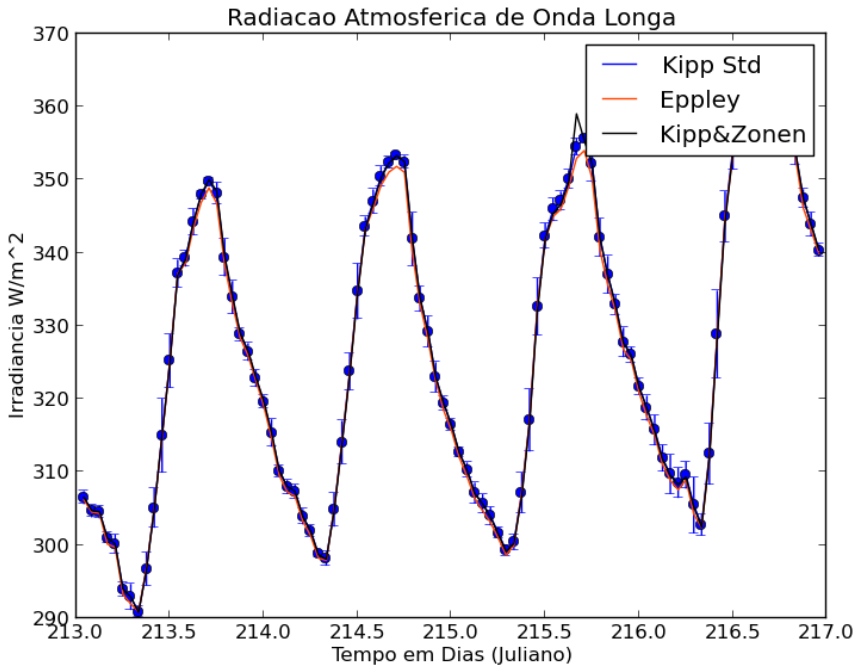


Figura: b) de 1/8/13 a 5/8/13

Gráficos de Correlação PIR KippZonen

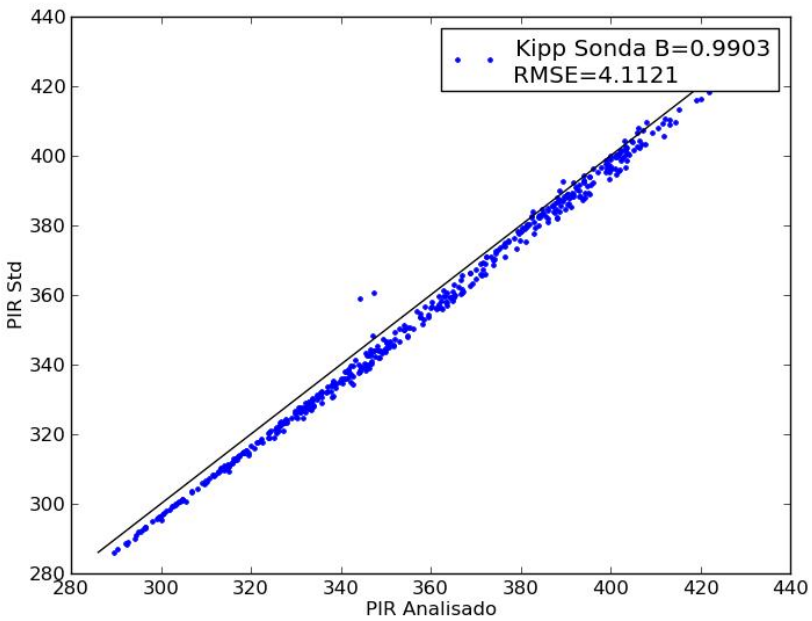


Figura: a) metodologia anterior

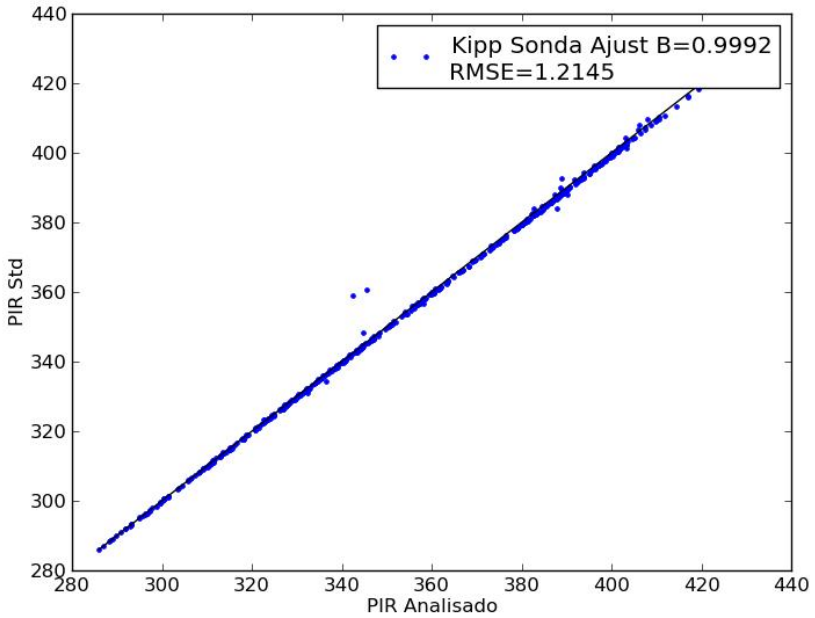


Figura: b) metodologia sugerida

Gráficos de Correlação PIR Eppley

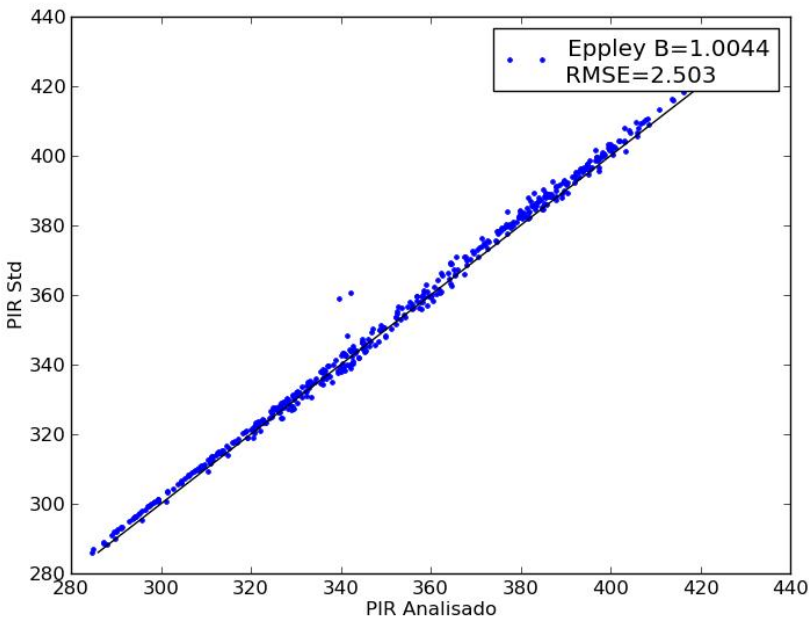


Figura: a) metodologia anterior

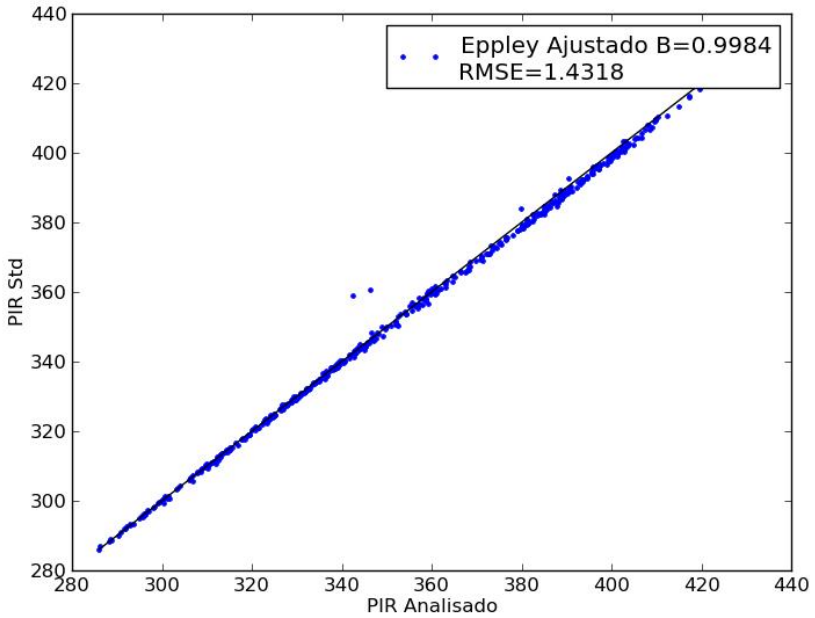


Figura: b) metodologia sugerida

Conclusão

- Sobre o funcionamento do método
- As possibilidades

Referências


PHILIPONA, R.; FRÖHLICH, C.; BETZ, CH. Characterization of pyrgeometers and the accuracy of atmospheric long-wave radiation measurements. **APPLIED OPTICS**, v. 34, n. 9, p. 1598-1605, March 1995.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Obrigado