

## Referências bibliográficas

- 1 Nogueira de Faria, W.; Oliveira, G. L. **Análise de Entradas de Ar Tipo NACA com Gerador de Vórtices.** CIT02-0758, 9th Brazilian Congress of Thermal Engineering and Sciences, ENCIT 2002, Caxambu - MG, Outubro 2002.
- 2 Fluent Inc. **FLUENT Flow Modeling Software.** <<http://www.fluent.com/software/fluent/index.htm>>.
- 3 Hime, L. **Estudo Numérico de Entradas de Ar para Aeronaves.** Relatório PIBIC-CNPq, Departamento de Engenharia Mecânica, PUC-Rio, Rio de Janeiro, Julho 2004.
- 4 Ferrari, C.; Tricomi, F. G. **Transonic Aerodynamics.** Translated by R. H. Cramer, The Johns Hopkins University, Maryland, 1968.
- 5 Sacks, A. H.; Spreiter, J. R. **Theoretical Investigation of Submerged Inlets at Low Speed.** NACA TN-2323, August 1951.
- 6 Hall, C. F.; Barclay F. D. **An Experimental Investigation of NACA Submerged Inlets at High Subsonic Speeds. I-Inlets Forward of the Wing Leading Edge.** NACA RM A8B16, June 1948.
- 7 Devine, R.J.; Watterson, J.K.; Cooper, R.K.; Richardson, J. **An Investigation into Improving the Performance of Low Speed Auxiliary Air Inlets using Vortex Generators.** AIAA 2002-3264, 20th AIAA Applied Aerodynamics Conference, St. Louis - Missouri, June 2002.
- 8 Hall, C. F.; Frank, J. L. **Ram-Recovery Characteristics of NACA Submerged Inlets at High Subsonic Speeds. I-Inlets Forward of the Wing Leading Edge.** NACA RM A8I29, November 1948.
- 9 Delany, N. K. **An Investigation of Submerged Air Inlets on a  $\frac{1}{4}$ -Scale Model of a Fighter-Type Airplane.** NACA RM A8A20, June 1948.

- 10 Mossman, E. A. **A Comparison of Two Submerged Inlets at Subsonic and Transonic Speeds.** NACA RM A9F16, September 1949.
- 11 Frank, J. L.; Taylor, R. A. **Comparison of Drag, Pressure Recovery, and Surface Pressure of a Scoop-Type and an NACA Submerged Inlet at Transonic Speeds.** NACA RM A51H20a, December 1951.
- 12 Taylor, R. A. **Some Effects of Side-Wall Modifications on the Drag and Pressure Recovery of an NACA Submerged Inlet at Transonic Speeds.** NACA RM A51LO3a, February 1952.
- 13 Dennard, J. S. **Transonic Investigation of the Mass Flow and Pressure Recovery Characteristics of Several Types of Auxiliary Air Inlets.** NACA RM L57B07, April 1957.
- 14 Farokhi, S. **Propulsion System Design with Smart Vortex Generators.** Aircraft Design, Vol. 1, No. 3, September 1998, pp. 127-143.
- 15 Rodriguez, D. L. **A Multidisciplinary Optimization Method for Designing Inlets Using Complex Variables.** AIAA 2000-4875, 8th AIAA/USAF/NASA/ISSMO Symposium on Multidisciplinary Analysis and Optimization, September 2000.
- 16 Taskinoglu, Ezgi S.; Knight, Doyle. **Numerical Analysis of Submerged Inlets.** AIAA 2002-3147, 20th AIAA Applied Aerodynamics Conference, St. Louis - Missouri, June 2002.
- 17 Taskinoglu, E. S. et al. **Multi-objective Design Optimization and Experimental Measurements for a Submerged Inlet.** AIAA 2004-25, 42nd AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, January 2004.
- 18 Engineering Sciences Data Unit, ESDU. **Drag and Pressure Recovery Characteristics of Auxiliary Air Inlets at Subsonic Speeds.** Item N° 86002, Issued, April 1986, with amendments A and B, July 1996.
- 19 Fluent Inc. **FLUENT 6.0 User's Guide.** <[http://eng.snu.ac.kr/down/on-line-documents/fluent/help/html/ug/main\\_pre.htm](http://eng.snu.ac.kr/down/on-line-documents/fluent/help/html/ug/main_pre.htm)>.
- 20 Azevedo, J. L. F. **Aerodinâmica e Transição à Turbulência.** II Escola Brasileira de Primavera Transição e Turbulência – ETT 2000, Cap. 8, Universidade Federal de Uberlândia, Dezembro 2000, pp. 261-310.

- 21 Pope, S. B. **Turbulent Flows.** Cambridge University Press, New York, 2000.
- 22 Wolfgang, R. **Turbulence Models and their Application in Hydraulics.** University of Karlsruhe, Federal Republic of Germany, 2nd Edition, February 1984.
- 23 Spalart, P. R.; Allmaras, S. R. **A One-equation Turbulence Model for Aerodynamic Flows.** La Recherche Aérospatiale, No. 1, 1994, pp. 5-21.
- 24 Shih, T. at al. **A New k-Eddy-Viscosity Model for High Reynolds Number Turbulent Flows - Model Development and Validation.** Computers and Fluids, Vol. 24, No. 3, March 1995, pp. 227-238.
- 25 Launder, B.E; Spalding, D.B. **Lectures in Mathematical Models of Turbulence.** Academic Press, London, England, 1972.
- 26 Celis, C. at al. **Evaluation of Different Turbulence Models to Predict a Turbulent Free Jet.** COBEM2005-0264, 18th ABCM International Congress of Mechanical Engineering, Ouro Preto - MG, Brazil, November 2005.
- 27 Launder, B. E.; Spalding, D. B. **The Numerical Computation of Turbulent Flows.** Computer Methods in Applied Mechanics and Engineering, Vol. 3, No. 2, March 1974, pp. 269-289.
- 28 Schlichting, H.; Gersten, K. **Boundary Layer Theory.** 8th Edition, Springer-Verlag, Berlin, 2000.
- 29 Schetz, J. **Boundary Layer Analysis.** Prentice Hall, New Jersey, 1993.
- 30 Kim, S. E.; Choudhury, D. **A Near-Wall Treatment Using Wall Functions Sensitized to Pressure Gradient.** Proceedings of the ASME/JSME Fluids Engineering and Laser Anemometry Conference and Exhibition, Hilton Head, SC, USA, August 1995, pp. 273-280.
- 31 Schlichting, H.; Truckenbrodt, E. **Aerodynamics of the Airplane.** McGraw-Hill, New York, 1979.
- 32 Verhaagen, N.G.; Maseland, J.E.J. **Experimental Investigation of the Vortex Flow over a 76/60-deg Double Delta Wing.** Report N95-17874, National Aerospace Laboratory NLR, Amsterdam, The Netherlands, 1995.

## 8 Apêndices

### Apêndice A

#### Resíduos

Nesta seção são apresentadas as curvas de convergência de todos os casos estudados neste trabalho. Estas figuras, i.e., Figura 8-1 a Figura 8-18, as quais mostram os resíduos das variáveis em função do número de iterações, permitem visualizar que em todos os cálculos realizados esperou-se a completa estabilização dos resíduos antes de interromper-se a execução do programa de cálculo. Note-se também nestas figuras, os baixos valores de resíduos atingidos após a completa estabilização.

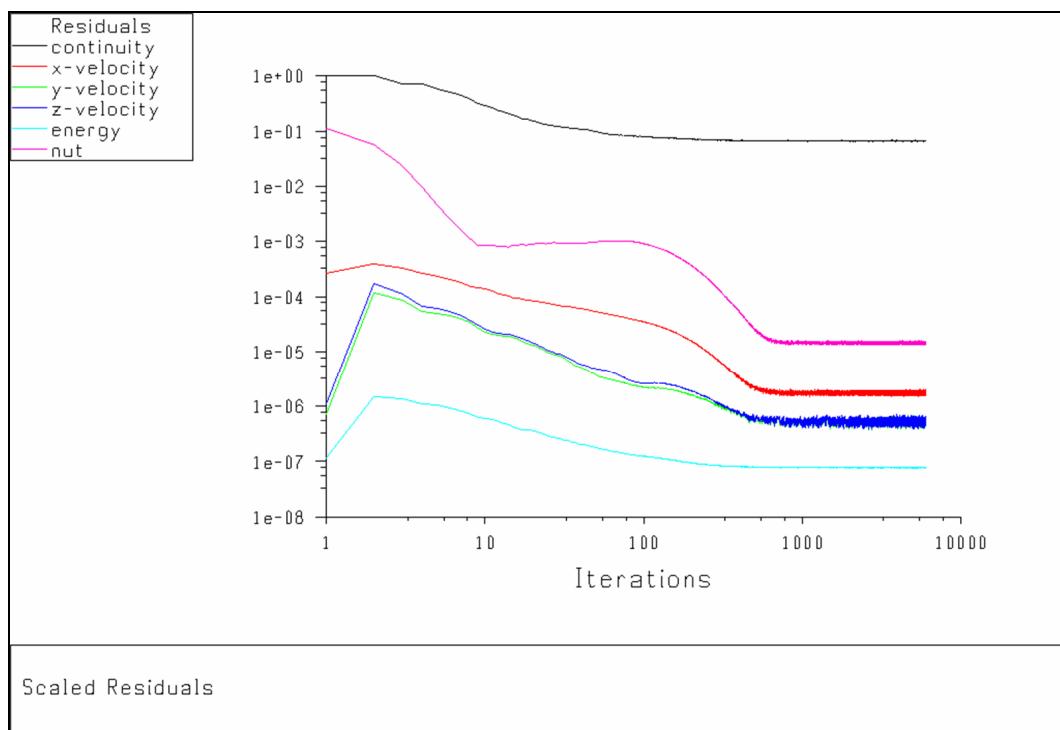


Figura 8-1. Resíduos – Caso N1A-1.

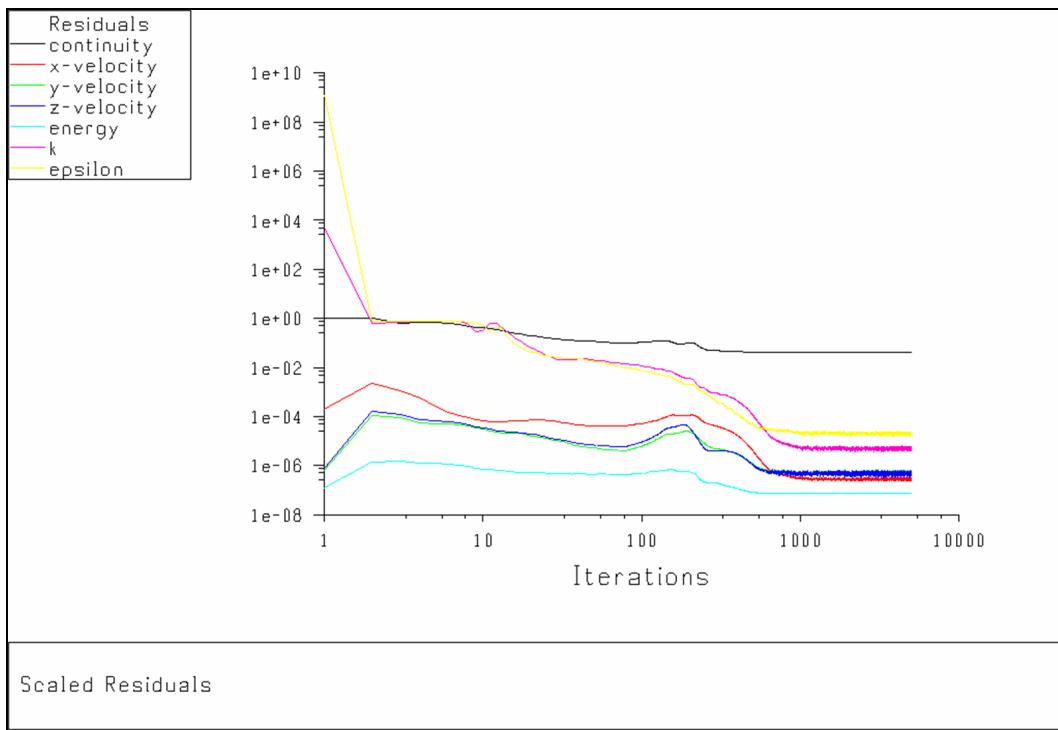


Figura 8-2. Resíduos – Caso N2A.

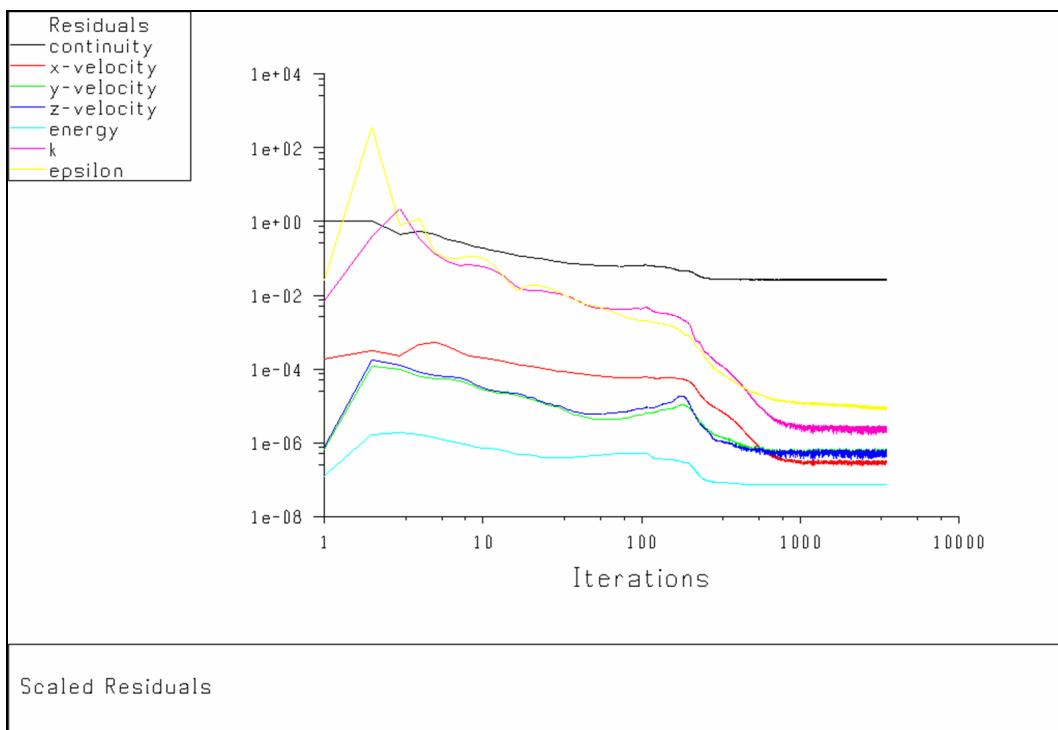


Figura 8-3. Resíduos – Caso N2B-1.

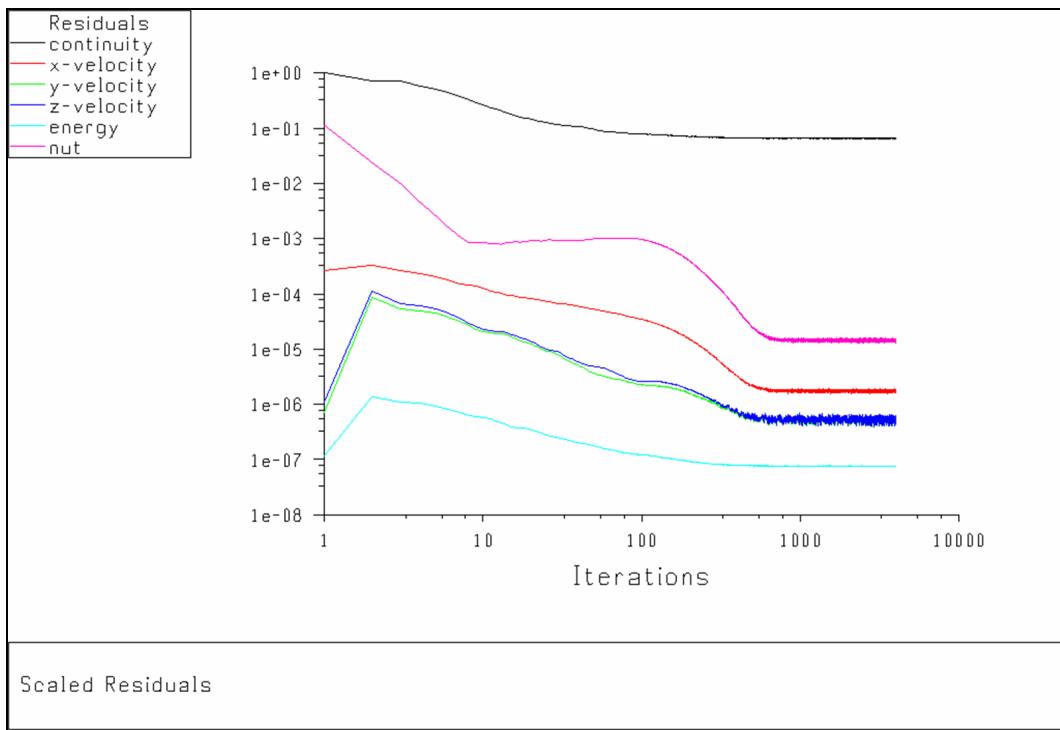


Figura 8-4. Resíduos – Caso N1A-2.

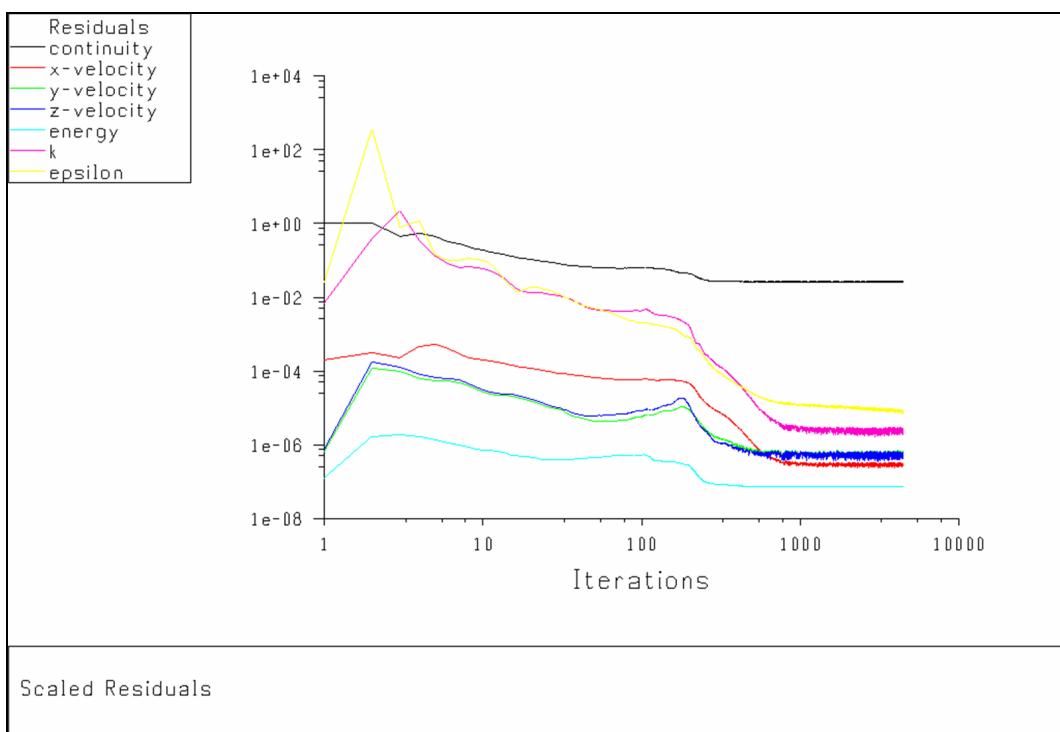


Figura 8-5. Resíduos – Caso N2B-2.

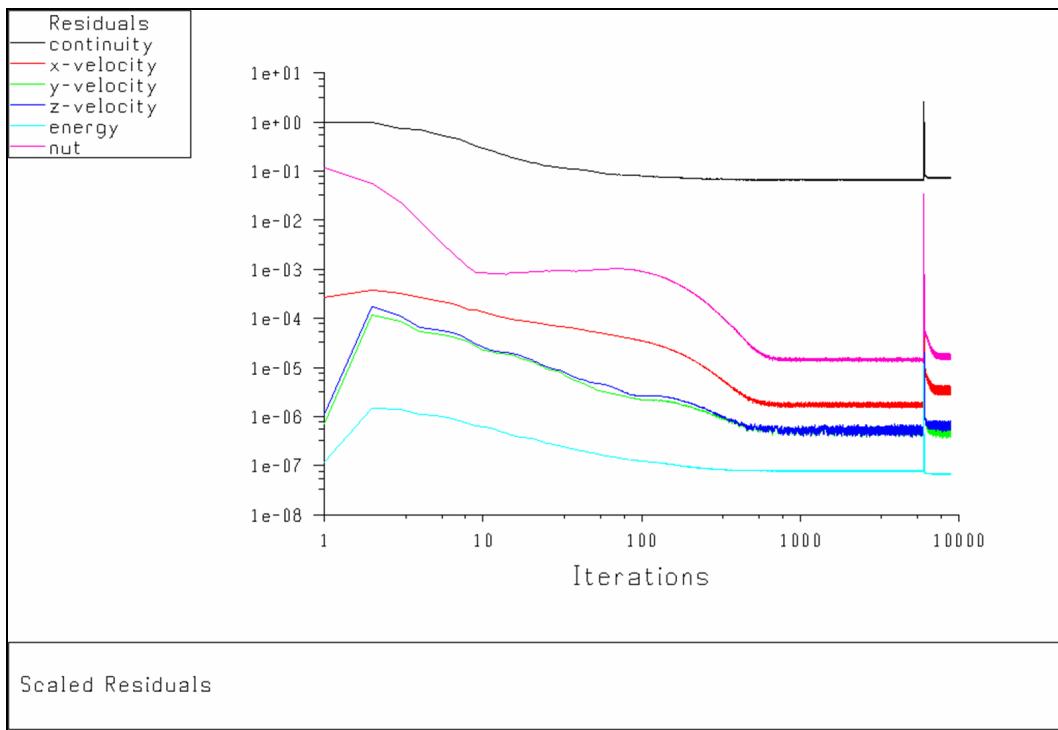


Figura 8-6. Resíduos – Caso N1B.

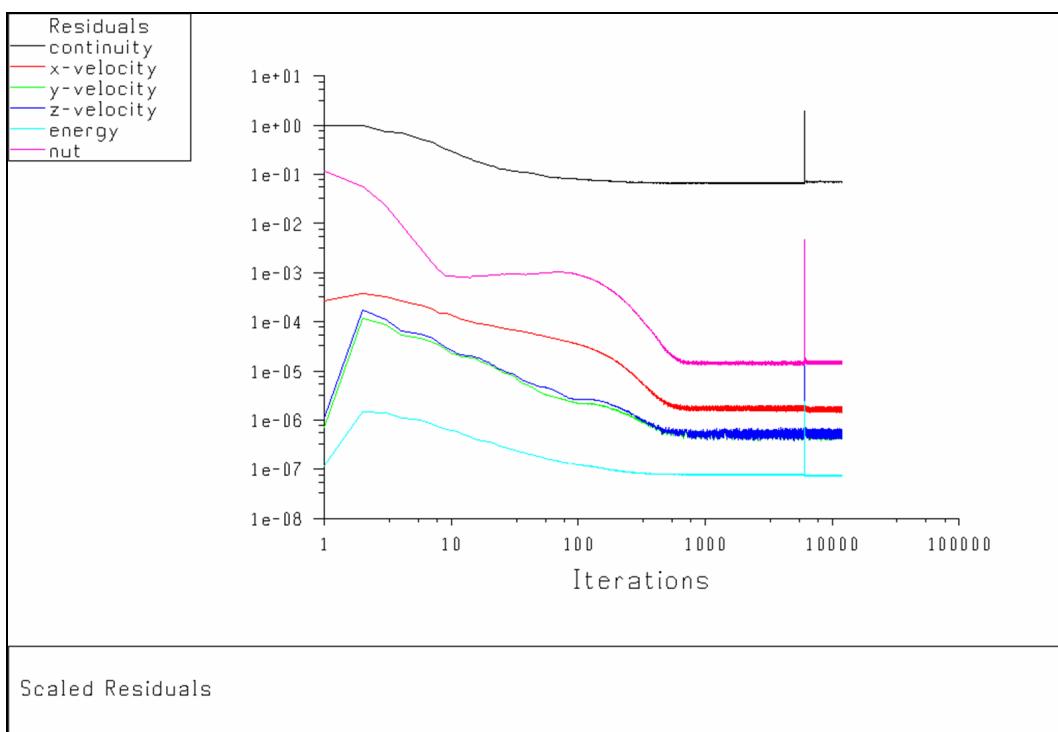


Figura 8-7. Resíduos – Caso N1C.

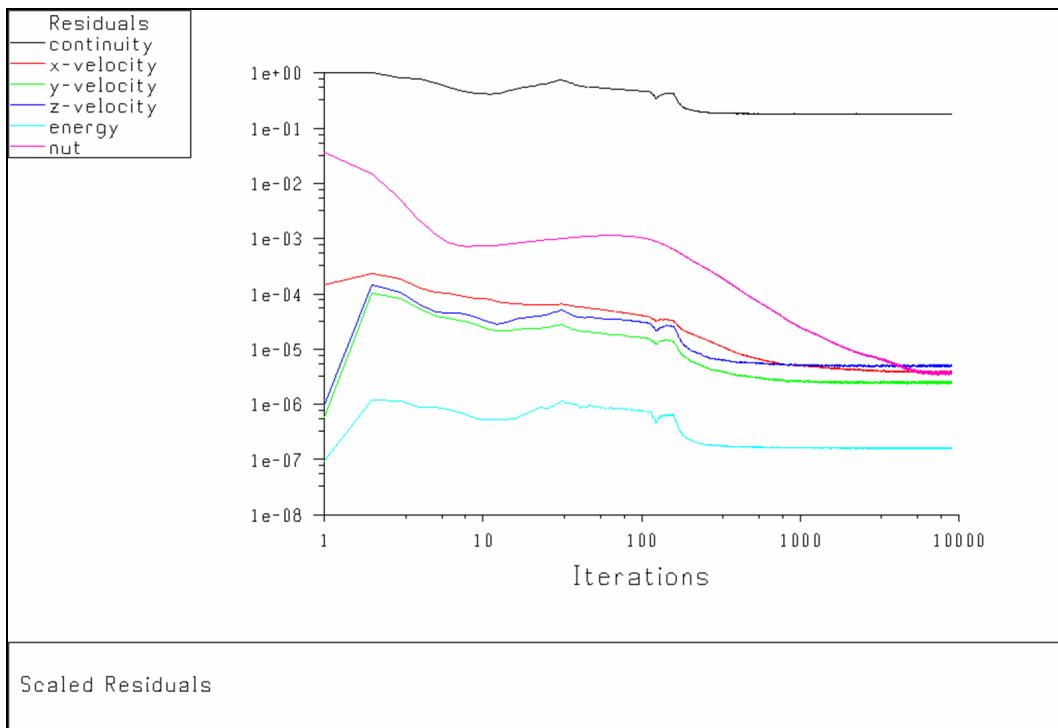


Figura 8-8. Resíduos – Caso NGVA.

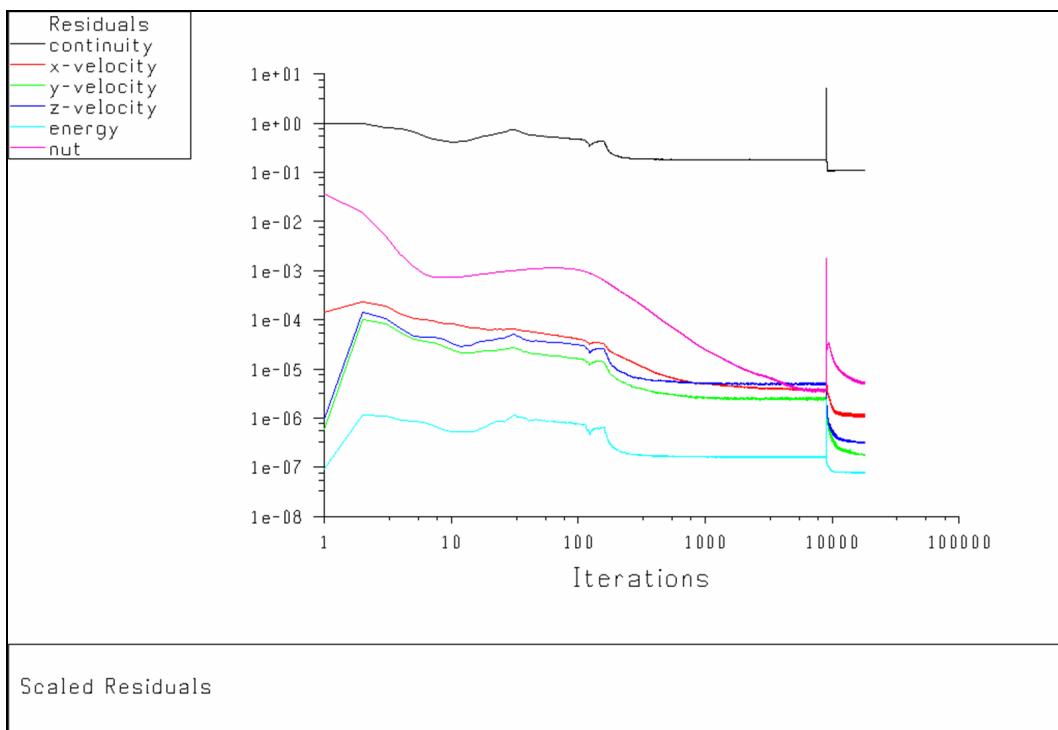


Figura 8-9. Resíduos – Caso NGVA-1.

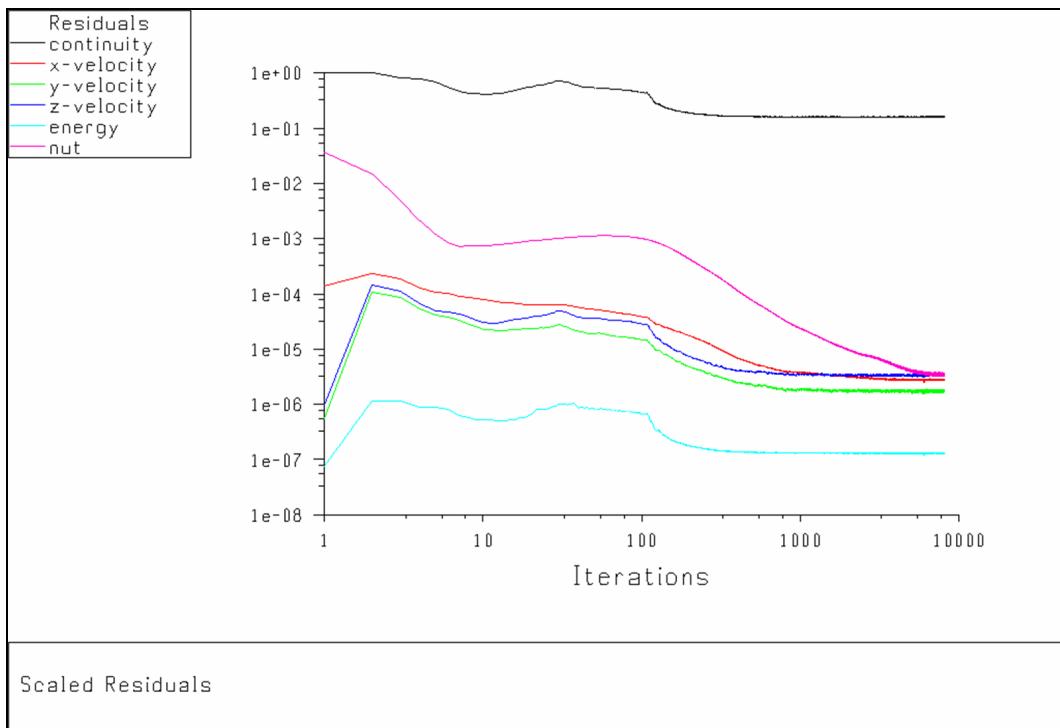


Figura 8-10. Resíduos – Caso NGVB.

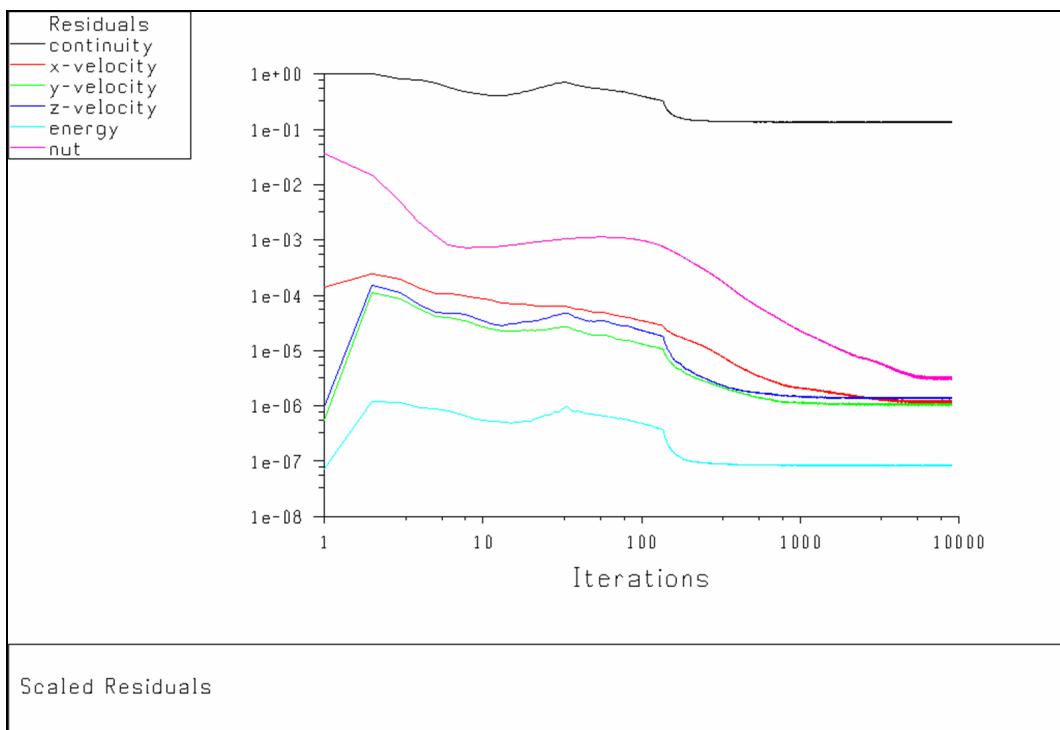


Figura 8-11. Resíduos – Caso NGVC.

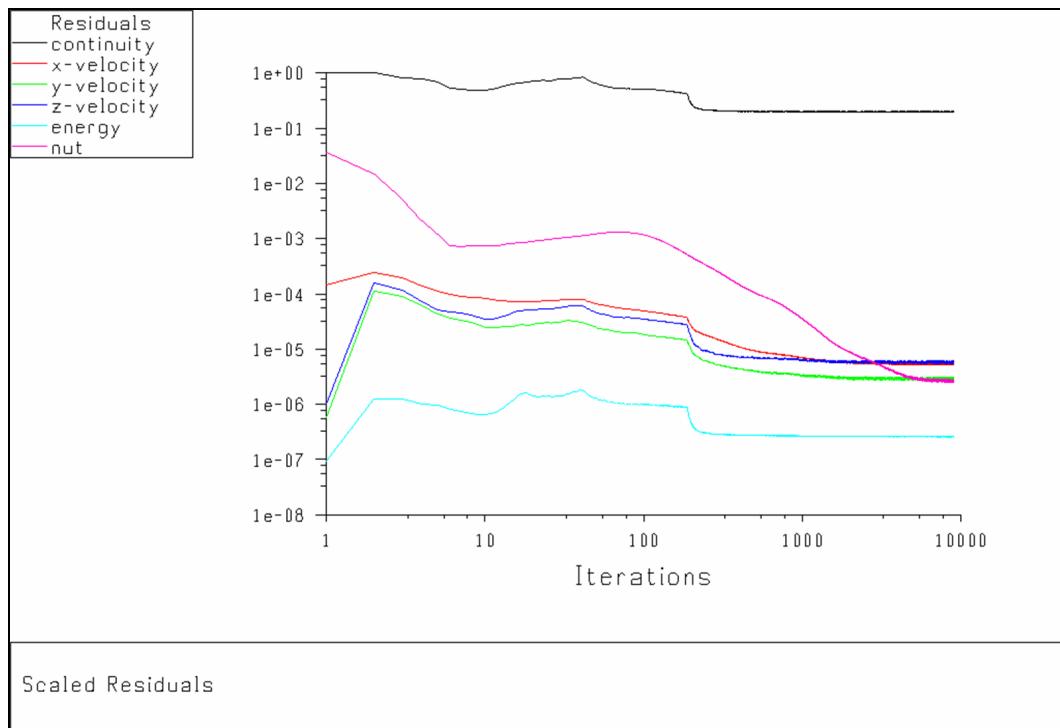


Figura 8-12. Resíduos – Caso NGVA-25.

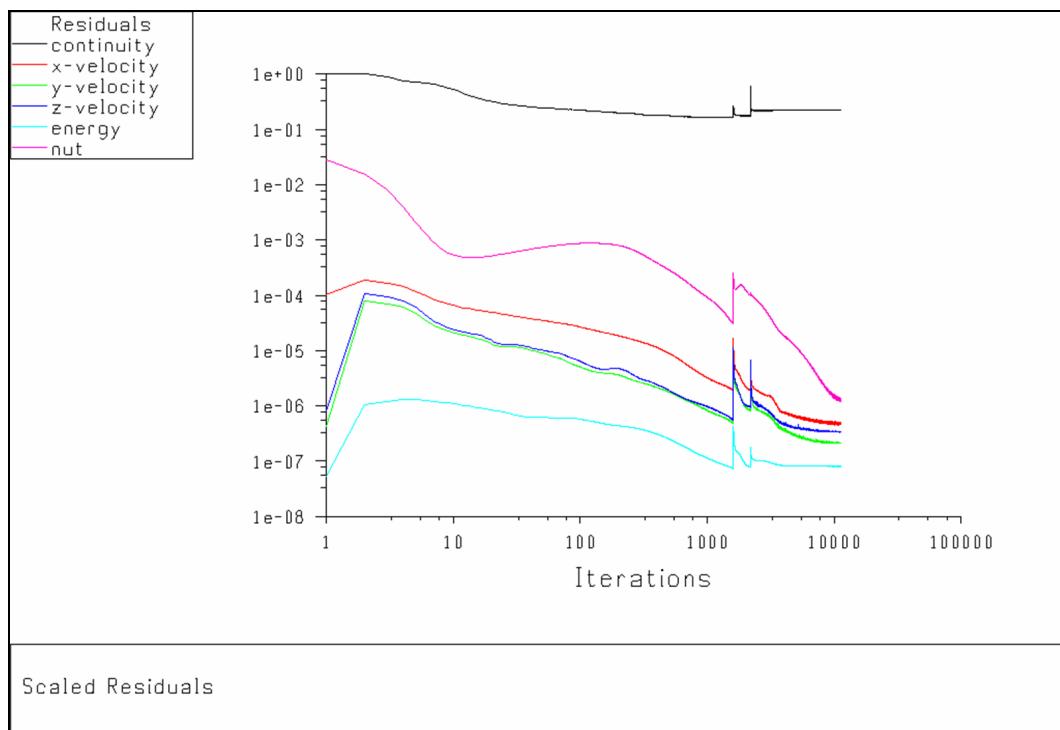


Figura 8-13. Resíduos – Caso NGVA-35.

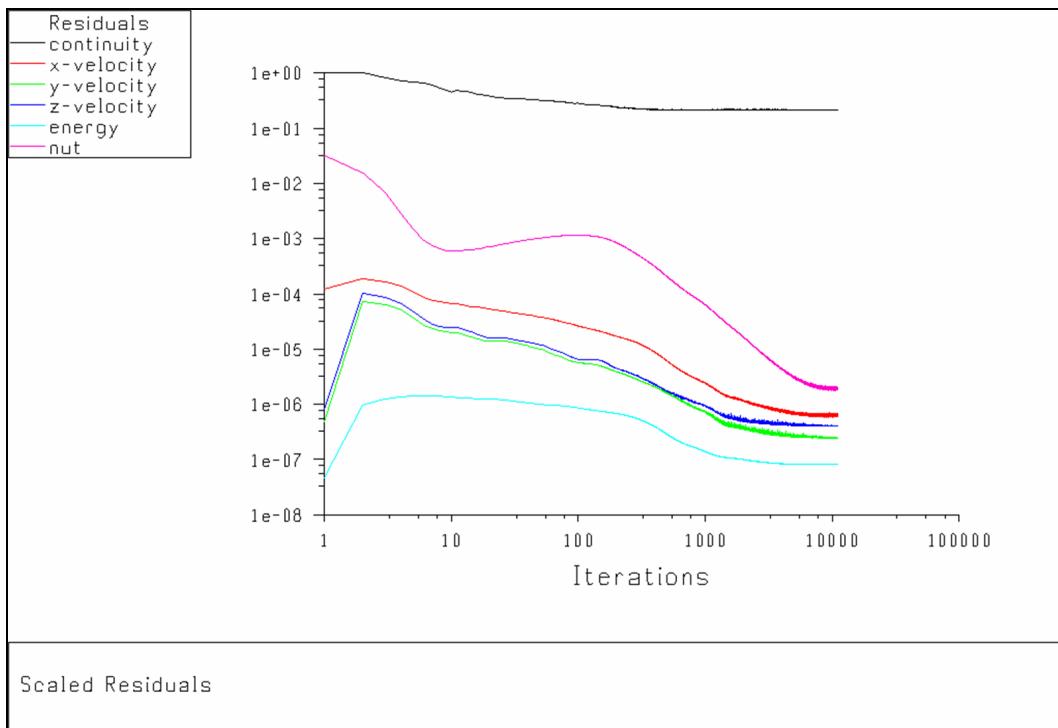


Figura 8-14. Resíduos – Caso NGVA-1,5A.

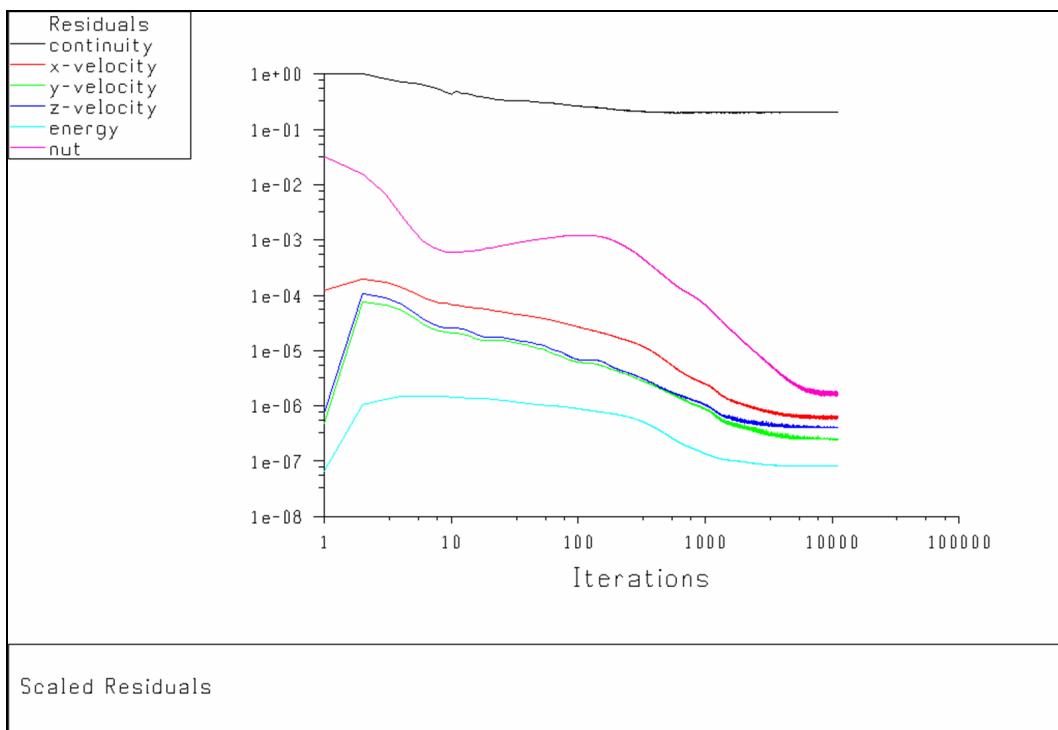


Figura 8-15. Resíduos – Caso NGVA-2,0A.

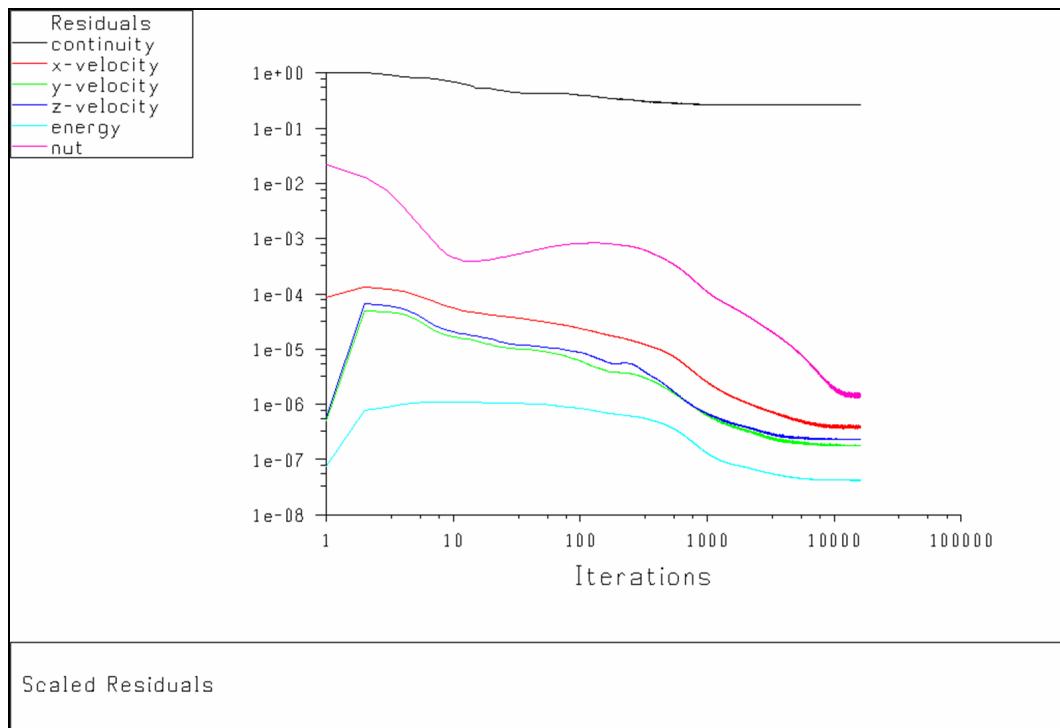


Figura 8-16. Resíduos – Caso NGVAM-0.

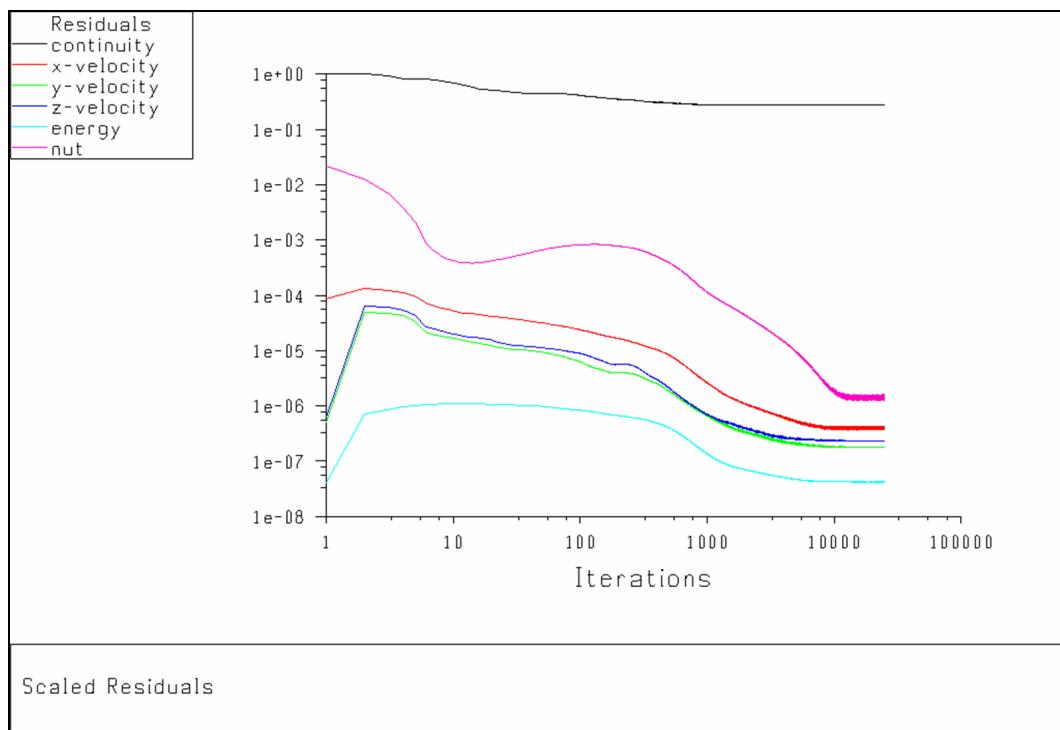


Figura 8-17. Resíduos – Caso NGVAM-5.

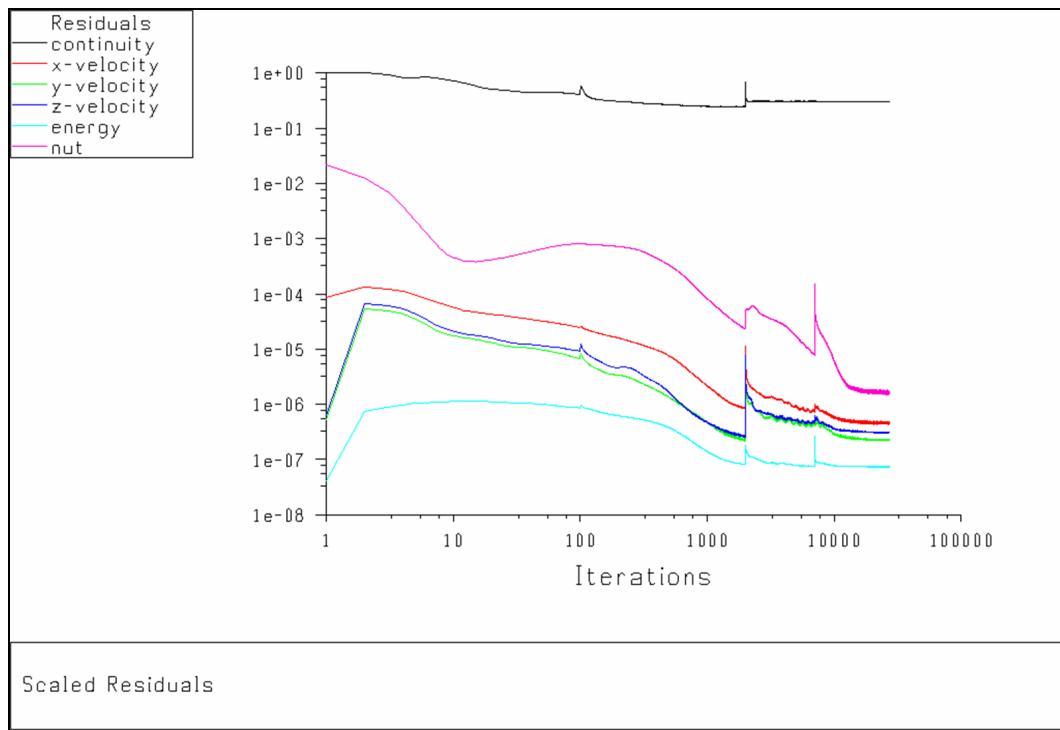


Figura 8-18. Resíduos – Caso NGVAM-10.