RBK FISIKA BUMI

Deskripsi

Posisi geografis dan kondisi geologis Indonesia yang berada di pertemuan tiga lempeng tektonik menyebabkan berbagai wilayah di Indonesia rentan mengalami bencana kebumian, misalnya erupsi vulkanik, banjir lahar dingin, gempa bumi, tsunami, tanah longsor, dan banjir bandang. Bencana kebumian tersebut dapat digolongkan menjadi dua, yaitu: bencana hidrometeorologi (banjir lahar dingin, banjir bandang, tanah longsor, kebakaran hutan) dan non-hidrometeorologi (gempa bumi, tsunami, erupsi vulkanik). Meskipun telah banyak upaya yang dilakukan untuk mengurangi dampak dan risiko bencana kebumian, hampir semua upaya belum membuahkan hasil yang optimal sesuai dengan yang diharapkan. Berbagai elemen masyarakat melakukan kajian berjenjang dan berkelanjutan tentang potensi bahaya dan cara penanggulangan bencana yang efektif melalui pendekatan lintas sektoral atau multi-disiplin sebagai bagian dari kontribusi nyata terhadap pengurangan dampak dan risiko bencana kebumian sampai sekecil mungkin. Pendekatan lintas sektoral atau multi-disiplin meliputi solusi alternatif bagian 'hulu' dan 'hilir'. Bagian hulu berkaitan langsung dengan pemahaman dan teknis penanggulangan bencana yang memerlukan penguasaan ilmu geofisika terkait bencana kebumian, misalnya pengembangan sistem peringatan dini bencana kebumian. Bagian hilir berkaitan langsung dengan upaya sosialisasi bencana kebumian yang melibatkan ilmu sains kebencanaan, komunikasi sains, dan pendidikan mitigasi bencana. Oleh karena itu, RBK Fisika Bumi terdiri dari dua sub-kelompok dengan fokus penelitian yang berbeda, yaitu penelitian fisika bumi dengan fokus aspek hulu dan aspek hilir. Personalia Dosen RBK Fisika Bumi diberikan di bawah ini.

Personalia		
Tim RBK Fisika Bumi		
	Tjipto Prastowo, Ph.D. (Koordinator)	Keahlian: Earth Sciences, Geomagnetic Field, Gravity Current, Physical Oceanography, Geophysical Fluid Dynamics, Mixing in Exchange Flows
	Prof. Dr. Madlazim, M.Si. (Anggota)	Keahlian: Fisika seismologi, estimasi gempa bumi berpotensi tsunami.
	Arie Realita,S.Si, M.Si. (Anggota)	Keahlian: Fisika kebumian, metode resistivity, pengolahan data gravity
Roadmap Penelitian		



Gambar A.7. Peta Jalan Penelitian KBK Fisika Bumi

Research Projects

1. Moment tensor gempabumi - gempabumi local di sepanjang Sesar Sumatra (2010, BPPS-Dikti)
2. Menuju peringatan dini tsunami Indonesia menggunakan prosedur langsung untuk perhitungan durasi rupture secara cepat, 2011, BPPS-Dikti)
3. Toward Indonesian Tsunami Early Warning System by Using Rapid Rupture Duration
4. Calculation (2012, Hibah Insentif Artikel-Dikti)
5. Implementasi Software Joko Tingkir untuk Meningkatkan Ketrampilan Masyarakat dalam Mengambil Keputusan untuk Meminimalkan Resiko Bencana Gempa Bumi dan Tsunami (2013, Hibah Fundamental-Dikti)
6. Pengembangan Metode Mikroseismik untuk Penentuan Lokasi Pengeboran Sumur
7. Produksi Panas Bumi (2013, Hibah Bersaing, Dikti)
8. Pengembangan Metode Peringatan Dini Tsunami (Hibah Strategis Nasional, DRPM Ristek-Dikti)
9. Pengembangan metode pengambilan keputusan peringatan dini tsunami sebagai upaya peningkatan kinerja Ina-TEWS (2016)
10. Pengembangan video pembelajaran pendekatan saintifik untuk mengembangkan keterampilan mengajar calon guru IPA (2016)
11. Pengembangan metode pengambilan keputusan peringatan dini tsunami sebagai upaya peningkatan kinerja Ina-TEWS (2015)
12. Pencitraan Tomografi Gempa Bumi Lokal 3D Daerah Jawa Barat (2009, BOPTN UNESA)
13. Analisis Fungsi Penerima Gelombang P untuk Mengetahui Struktur kerak Bumi (2011, BOPTN UNESA)

14. Pengembangan Metode Penentuan CMT Gempa-Gempa untuk Mengurangi Korban Bencana (2018, Kebijakan Psca Sarjana)
15. Metode Baru untuk Mengukur Parameter Tsunami Secara Cepat dan Akurat (2018, Penelitian berbasis Kompetensi)
16. Pengembangan Metode Alternatif Sistem Peringatan Dini Tsunami Berbasis Monitoring Dan Evaluasi Sinyal Magnetik (2019, Penelitian Dasar Pascasarjan)
17. Pengembangan Model Pembelajaran ORSAEV untuk Meningkatkan Kesiapsiagaan Bencana bagi Mahasiswa Calon Guru (2019, Penelitian Kebijakan penugasan FMIPA)
18. Analisis Orientasi Bidang Patahan Sesar PaluKoro di Sulawesi Tengah (2019, Penelitian PNBP)
19. Metode Baru untuk Mengukur Parameter Tsunami Secara Cepat dan Akurat (2019, Penelitian Multitahun DPRM)
20. Pengembangan Model Pembelajaran Mitigasi Bencana Tsunami bagi masyarakat (2019, Penelitian Multitahun DPRM)
21. Pengembangan Model Pebelajaran Mitigasi Bencana Tsunami Bagi Masyarakat (2019, Penelitian Dasar Unggulan Perguruan Tinggi)
22. Pemodelan Perkembangan Kasus Covid-19 Berbasis Tren Kurva dengan Bantuan Spreadsheet (2019, Penelitian Kebijakan FMIPA Dana PNBP)
23. Pengembangan Roadmap Penelitian Bidang Unggulan Sain Unesa (2019, Penelitian Percepatan Penanganan Covid-19)
24. Pengembangan Ruang Sterilisasi Alat Pelindung Diri (APD) Tenaga Medis Berbasis Internet of Things (IoT) (2019, Penelitian Kompetitif LPPM)
25. Pengembangan aplikasi peringatan Dini tsunami sekitar 4 menit setelah Gempa Bumi (2020, Riset Unggulan)
26. Metode Baru untuk Mengukur Parameter Tsunami Secara Cepat dan Akurat (2020, Penelitian dasar)

PATEN/HAKI

Software **"Joko Tingkir"** , teknologi peringatan dini tsunami menggunakan konsep periode dominan, durasi exceed dan durasi ruptura.(Haki/Hak Cipta, 2013)

PUBLIKASI DI JURNAL

No.	Nama Dosen	Judul	Penulis	Nama Jurnal	Quartile	URL/ DOI
2020						
1	**Prof. Tjipto Prastowo, Ph.D** **Prof. Dr. Madlazim, M.Si**	Analysis of tsunami-magnetic anomaly signal in indonesian regions using theoretical approach and recorded magnetogram	Prastowo, T., Madlazim, Cholifah, L.	Science of Tsunami Hazards, Volume 39, Issue 1, 2020, Pages 1-51	Q3	Link
2	**Prof. Dr. Madlazim, M.Si** Dr. Binar KP, M.Pd	An OrSAEv learning model to improve the disaster preparedness of STEM teacher candidates	Madlazim, Rahmadiarti, F., Masriyah, Indana, S, Sunarti, T., Prahani, B.K.	World Transactions on Engineering and Technology Education, 18(2), 231-236	Q1	Link
2019						
3	**Prof. Dr. Madlazim, M.Si** **Tjipto Prastowo, Ph.D**	Beta testing for increased accuracy and improved performance of the indonesian tsunami early warning application (ina-tewa)	Madlazim, Tjipto Prastowo	Science of Tsunami Hazards	Q4	Link
4	**Prof. Dr. Madlazim, M.Si**	Development of Tsunami early warning application four minutes after an earthquake	Madlazim, Rohadi, S., Koesoema, S., Meilianda, E.	Science of Tsunami Hazards, 38(3), pp. 132-141	Q3	Link
5	**Prof. Dr. Madlazim, M.Si**	Identification of students' misconception on Newton's law of gravitation concept using the four-tier diagnostic test instrument	Madlazim, Izzah, N.	Journal of Science Education, 20(1)	Q4	Link
6	**Prof. Dr. Madlazim, M.Si**	The gender differences on physics national examination (NE) performance in East Java during the last 3 years (2016-2018)	Madlazim, Husnaini, S.J.	Journal of Science Education, 20(1)	Q4	Link
7	**Prof. Dr. Madlazim, M.Si**	Improvement of science process skills (SPS) with implementation guided inquiry learning using STEM approach	Amalia, F., Madlazim	Journal of Science Education, 20(1)	Q4	Link
2018						
8	**Prof. Dr. Madlazim, M.Si.** **Tjipto Prastowo, Ph.D.**	Source parameter estimates of the 4 November 2016 mb = 4.7 earthquake near Lawu mountain in East Java, Indonesia	Madlazim and T. Prastowo	Science of Tsunami Hazards (STH), 37(4), 222-231	Q4	Link

9	**Prof. Dr. Madlazim, M.Si.** **Tjipto Prastowo, Ph.D.**	Analysis of travel time delay for large tsunamis across the Pacific and Indian Oceans	Tjipto Prastowo, Latifatul Cholifah, Madlazim	Science of Tsunami Hazards (STH), 37(4), 195-212	Q4	Link
10	Dr. Titin Sunarti, M.Si. Prof. Dr. Wasis, M.Si. **Prof. Dr. Madlazim, M.Si.** Dr. Binar K Prahani, M.Pd.	Effectiveness of CPI (Construction, Production, and Implementation) Teaching Model to Improve Science Literation for Pre-service Physics Teacher	Titin Sunarti, Binar Kurnia Prahani, Wasis, Madlazim , Suyidno	Journal of Science Education Vol 19 No 1	Q4	Link

PUBLIKASI DI KONFERENSI

No	Nama Dosen	Judul	Penulis	Nama Jurnal	Quartile	URL/ DOI
2021						
1	Setyo Admoko, M.Pd Nadi Suprapto, Ph.D Dr. Eko Hariyono, M.Pd **Prof Dr Madlazim, M.Si**	The implementation of Argument Driven Inquiry (ADI) learning model to improve scientific argumentation skills of high school students	**S Admoko**, N Hanifah, **N Suprapto, E Hariyono** and **M Madlazim**	Journal of Physics: Conference Series 1747:012046	Q3	Link
2	Setyo Admoko, M.Pd Nadi Suprapto, Ph.D Dra Suliyanah, M.Si Utama Alan Deta, M.Pd., M.Si Drs. Hainur Rasyid Achmadi, M.S Dr. Eko Hariyono, M.Pd **Prof Dr Madlazim, M.Si**	Using Toulmin's Argument Pattern Approach to Identify Infodemics in the Covid-19 Pandemic Era	**S Admoko, N Suprapto, Suliyanah, U A Deta, H R Achmadi, E Hariyono** and **Madlazim**	Journal of Physics: Conference Series 1805:012011	Q3	Link
3	Mita Anggaryani, Ph.D **Prof. Tjipto Prastowo, Ph.D** **Prof. Madlazim, M.Si** Drs. Supardiyono, M.Si Dr. Asnawi, M.Si	A simple note on the growth rate of Covid-19 in Indonesia based on a curve trend generated by a spreadsheet	**M Anggaryani, T Prastowo, Madlazim, Supardiyono** and **Asnawi**	Journal of Physics: Conference Series 1747:012024	Q3	Link
4	Prof Dr Wasis, M.Si **Prof. Tjipto Prastowo, Ph.D**	High Order Thinking Skills Students Through Multi-Representation Test on Newtons Law Study	H Z Puspitaningrum, **Wasis** and **T Prastowo**	Journal of Physics: Conference Series 1805:012010	Q3	Link

5	**Prof. Dr. Madlazim, M.Si**	A conceptual framework of STEM education based on the Indonesian Curriculum	E Sujarwanto, **Madlazim** and I G M Sanjaya	Journal of Physics: Conference Series 1760:012022	Q3	Link
6	Mita Anggaryani, Ph.D **Prof. Tjipto Prastowo, Ph.D** **Prof. Madlazim, M.Si** Drs. Supardiyono, M.Si Dr. Asnawi, M.Si	A simple note on the growth rate of Covid-19 in Indonesia based on a curve trend generated by a spreadsheet	**M Anggaryani, T Prastowo, Madlazim, Supardiyono** and **Asnawi**	Journal of Physics: Conference Series 1747:012024	Q3	Link
7	**Prof. Dr. Madlazim, M.Si**	A conceptual framework of STEM education based on the Indonesian Curriculum	E Sujarwanto, **Madlazim** and I G M Sanjaya	Journal of Physics: Conference Series 1760:012022	Q3	Link
2020						
8	**Tjipto Prastowo, PhD** **Prof Dr Madlazim, M.Si**	Possible Detection of Magnetic Anomaly During Tsunami Events in Indonesian Regions Using Global Magnetogram Records	**T Prastowo, Madlazim** and L Cholifah	Journal of Physics: Conference Series Vol 1491		Link
9	Dr. Eko Hariyono, M.Pd. **Tjipto Prastowo, PhD**	Physics Student's Research Skills Performance: A Field-Based Approach in Geoscience Learning	**E Hariyono, T Prastowo** and M Hartati	Journal of Physics: Conference Series Vol 1491	Q3	Link
10	Dr. Eko Hariyono, M.Pd. **Prof. Dr, Madlazim, M.Si**	The Students' Voice of Volcanology in Education for Sustainable Development Context	S Anggrayni, E Hariyono and Madlazim	Journal of Physics: Conference Series Vol 1491	Q3	Link
11	Dr. Titin Sunarti, M.Si Prof Dr Wasis, M.Si **Prof Dr Madlazim, M.Si**	Multidisciplinary, Interdisciplinary, and Transdisciplinary Approaches in Literacy Learning Model	T Sunarti, W Wasis, M Madlazim and S Suyidno	Journal of Physics: Conference Series Vol 1491	Q3	Link
2019						
12	**Tjipto Prastowo, Ph.D** **Prof. Dr. Madlazim, M.Si** **Drs. Supardiyono, M.Si**	Discriminating a Nuclear Blast from A Natural Seismic Event Using A Full Moment-Tensor Inversion Method	**T Prastowo, Madlazim** and **Supardiyono**	Journal of Physics Conference Series volume	Q3	Link

				1417 article number 012003		
13	**Tjipto Prastowo, Ph.D**	The nature of tsunami energy decay with epicentral distance in the open ocean for two large trans-Pacific tsunamis	**Prastowo, T**., Cholifah, L.	Journal of Physics Conference Series Vol. 1153, 012017, Februari 2019	Q3	Link
14	**Tjipto Prastowo, Ph.D**	Duration magnitude estimate from local magnitude for moderate earthquakes in three provinces of Sulawesi	Cholifah, L., Puspitasari, D.A., Mahanani, B.M.P., **Prastowo, T**.	Journal of Physics Conference Series Vol. 1153, 012018, Februari 2019	Q3	Link
15	**Tjipto Prastowo, Ph.D.**	A journey to Earth Science Projects at Physics Department, Universitas Negeri Surabaya: progress in recent years	**Prastowo, T.**	Journal of Physics: Conference Series Vol. 1171, 012018, Maret 2019	Q3	Link
16	Drs. Supardiyono, M.Si., **Tjipto Prastowo, Ph.D., dan Prof. Dr. Madlazim, M.Si.**	Source parameters identification for July 17th, 2014 earthquake around Jayawijaya mountains, Indonesia	**Supardiyono, T Prastowo** and **Madlazim**	Journal of Physics: Conference Series Vol. 1171, 012032, Maret 2019	Q3	Link
17	**Prof. Dr. Madlazim, M.Si** Dr. Eko Hariyono, M.Pd Nadi Suprapto, Ph.D	Development of OrSAEv Model Learning Materials to Strengthen the Characters of Tsunami Disaster Mitigation for Middle School Students (Preliminary Study)	B U Isna, **Madlazim**, **E Hariyono** and **N Suprapto**	Journal of Physics: Conference Series volume 1417 article number 012082	Q3	Link
18	**Prof. Dr. Madlazim, M.Si** Dr. Eko Hariyono, M.Pd Dr. Munasir, M.Si	Development of The OrSAEv Learning Materials: Preliminary Study of Student's Knowledge about Earthquake and Tsunami Mitigation	D E Elfiana, **Madlazim, E Hariyono** and **Munasir**	Journal of Physics: Conference Series volume 1417 article number 012083	Q3	Link
19	**Tjipto Prastowo, Ph.D**	Development of A-SSI Learning Media (Android Social Scientific Issues) to Improve Science Literation in Earth Coating Subject for First Grade of Junior High School	R M Jalil, **T Prastowo** and W Widodo	Journal of Physics: Conference Series volume 1417 article number 012085	Q3	Link

20	**Prof. Dr. Madlazim, M.Si** Dr. Eko Hariyono, M.Pd	Science teacher's conception about importance of Geoscience learning: A case study of junior high schools in Surabaya Indonesia	Anggrayni, **Madlazim** and **E Hariyono**	Journal of Physics: Conference Series volume 1417 article number 012090	Q3	Link
21	**Prof. Dr. Madlazim, M.Si**	Attitude, Knowledge, and Application of STEM Owned by Science Teachers	E Sujarwanto, **Madlazim**, and M Ibrahim	Journal of Physics: Conference Series volume 1417 article number 012096	Q3	Link
22	Dr. Dwikoranto, M.Pd. **Prof. Dr. Madlazim, M.Si**	Project based laboratory learning as an alternative learning model to improve sciences process skills and creativity of physic teacher candidate	**Dwikoranto, Madlazim** and Erman	Journal of Physics: Conference Series volume 1387 article number 012074	Q3	Link
2018						
23	**Prof. Dr. Madlazim, M.Si.** **Tjipto Prastowo, Ph.D.**	Real-time detection and characterization of nuclear explosion using broadband analyses of regional seismic stations	**T Prastowo** and **Madlazim**	Journal of Physics: Conference Series, IOP, Vol. 953, 012211	Q3	Link
24	**Prof. Dr. Madlazim, M.Si.** **Tjipto Prastowo, Ph.D.** Drs. Supardiyono, M.Si.	Determination of source parameters of the 2017 Mount Agung volcanic earthquake from moment-tensor inversion method using local broadband seismic waveforms	**Madlazim**, **T Prastowo**, **Supardiyono** and T Hardy	Journal of Physics: Conference Series, IOP, Vol. 997, 012001.	Q3	Link
25	Abd. Kholiq, S.Pd., M.T. **Tjipto Prastowo, Ph.D.**	Engaging pre-service teachers to teach science contextually with scientific approach instructional video	E Susantini, I Kurniasari, A N M Fauziah, **T Prastowo**, **A Kholiq** and L Rosdiana.	IOP Conf. Series: Materials Science and Engineering 296 (2018) 012005	-	Link
26	Dr. Titin Sunarti, M.Si. Prof. Dr. Wasis, M.Si. **Prof. Dr. Madlazim, M.Si.** Dr. Binar K Prahani, M.Pd.	The Effectivness Of CPI Model To Improve Positive Attitude Toward Science (Pats) For Pre-Service Physics Teacher	**T Sunarti**, **Wasis**, **Madlazim**, Suyidno and **B K Prahani**	J. Phys.: Conf. Ser. 997 012013	Q3	Link

27	Dr. Titin Sunarti, M.Si. Prof. Dr. Wasis, M.Si. **Prof. Dr. Madlazim, M.Si.** Dr. Binar K Prahani, M.Pd.	The Effectivness Of CPI Model To Improve Science Literacy For Pre-Service Physics Teacher	**T Sunarti**, **Wasis**, **Madlazim**, Suyidno and **B K Prahani**	J. Phys.: Conf. Ser. 997 012013	Q3	Link
28	Dr. Titin Sunarti, M.Si. Prof. Dr. Wasis, M.Si. **Prof. Dr. Madlazim, M.Si.** Dr. Binar K Prahani, M.Pd.	The effectiveness of CPI model to improve positive attitude toward science (PATS) for pre-service physics teacher	**T Sunarti**, **Wasis**, **Madlazim**, Suyidno and **B K Prahani**	Journal of Physics: Conference Series 997 012013	Q3	Link