

Variable stars in Lacerta: area of $2^{\circ}.3 \times 2^{\circ}.3$, center $\alpha=22^{\text{h}}50^{\text{m}} \delta=54^{\circ}00'$ (2000.0). Part I

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#	Name	Other	Coord (J2000)	Type	Max	Min	System	Period	Epoch (JD)	type	Sp	Comment	L.Curve	Find.Chart	Data
1		2MASS 22422744+5446311	22 42 27.440 +54 46 31.11	EA	15.81	16.3		0.74069	2456928.152	min		Comm. 1	lc43456.png	ch43456.png	out43456.dat
2		2MASS 22423576+5411320	22 42 35.760 +54 11 32.06	RRC	13.52	13.61		0.59525	2456892.302	max			lc39193.png	ch39193.png	out39193.dat
3		2MASS 22424022+5453367	22 42 40.223 +54 53 36.80	EA	13.51	13.66		1.4781	2456928.176	min			lc36178.png	ch36178.png	out36178.dat
4		2MASS 22425392+5439498	22 42 53.929 +54 39 49.81	EA	13.17	13.54		2.24636	2456928.081	min		Comm. 4	lc46369.png	ch46369.png	out46369.dat
5		2MASS 22431277+5439408	22 43 12.776 +54 39 40.86	DSCT	13.49	13.56		0.1286145	2456173.175	max			lc46446.png	ch46446.png	out46446.dat
6		2MASS 22431512+5449579	22 43 15.125 +54 49 57.91	SR:	12.77	12.97		41.5:	2456171.1	max		Comm. 6	lc37854.png	ch37854.png	out37854.dat
7		2MASS 22432652+5411584	22 43 26.527 +54 11 58.48	EW:	12.04	12.13		1.1568:	2456894.271	min		Comm. 7	lc39418.png	ch39418.png	out39418.dat
8		2MASS 22433683+5429587	22 43 36.831 +54 29 58.77	EA	12.3	12.83		4.0553	2456928.273	min		Comm. 8	lc50148.png	ch50148.png	out50148.dat
9		2MASS 22433818+5446306	22 43 38.190 +54 46 30.65	EA	16.32	17.2		2.645:	2456929.153	min		Comm. 9	lc43878.png	ch43878.png	out43878.dat
10		2MASS 22434441+5415008	22 43 44.414 +54 15 00.86	LB	12.63	13.08				other		Comm. 10	lc56253.png	ch56253.png	out56253.dat
11		2MASS 22440248+5444221	22 44 02.483 +54 44 22.15	DSCT	12.561	12.578		0.07349	2456928.114	max			lc44787.png	ch44787.png	out44787.dat
12		2MASS 22440896+5430515	22 44 08.962 +54 30 51.51	BY	14.92	15.14		19.26	2456926.09	max			lc50407.png	ch50407.png	out50407.dat
13		2MASS 22442993+5431405	22 44 29.937 +54 31 40.57	BY	14.44	14.54		3.819	2456180.425	max			lc50230.png	ch50230.png	out50230.dat
14		2MASS 22443363+5335465	22 44 33.638 +53 35 46.58	SR:	12.93	13.06		29.8	2456896.3	max		Comm. 14	lc20473.png	ch20473.png	out20473.dat
15		2MASS 22444121+5403539	22 44 41.218 +54 03 53.98	LB	14.19	14.7				other		Comm. 15	lc32126.png	ch32126.png	out32126.dat
16		2MASS 22445704+5500055	22 44 57.050 +55 00 05.58	LB	13.56	13.67				other		Comm. 16	lc34215.png	ch34215.png	out34215.dat
17		2MASS 22445835+5444382	22 44 58.351 +54 44 38.25	EA	15.21	15.66		2.56142:	2456892.307	min			lc45128.png	ch45128.png	out45128.dat
18		2MASS 22450216+5409407	22 45 02.165 +54 09 40.79	DSCT	12.847	12.866		0.09233	2456928.279	max			lc40593.png	ch40593.png	out40593.dat
19		2MASS 22450238+5330579	22 45 02.382 +53 30 57.98	BY	13.45	13.51		20.52:	2456918.7	max			lc18341.png	ch18341.png	out18341.dat
20		2MASS 22450476+5414326	22 45 04.765 +54 14 32.63	LB	12.20	13.04				other		Comm. 20	lc38636.png	ch38636.png	out38636.dat
21		2MASS 22450865+5252223	22 45 08.652 +52 52 22.38	DSCT	13.35	13.37		0.095221	2456928.166	max			lc02616.png	ch02616.png	out02616.dat

22		2MASS 22451103+5455516	22 45 11.033 +54 55 51.60	EA	14.11	14.25		1.4045	2456929.203	min			lc35983.png	ch35983.png	out35983.dat
23		2MASS 22452107+5404582	22 45 21.071 +54 04 58.29	EW	14.9	15.02		0.30916	2456928.322	min		Comm. 23	lc31857.png	ch31857.png	out31857.dat
24		2MASS 22452154+5406107	22 45 21.547 +54 06 10.71	LB	11.98	12.12				other		Comm. 24	lc32746.png	ch32746.png	out32746.dat
25	GW Lac	2MASS 22454172+5314334	22 45 41.728 +53 14 33.45	EA	15.13	16.3		2.3009	2456927.154	min		Comm. 25	lc11406.png	ch11406.png	out11406.dat
26		2MASS 22455849+5403481	22 45 58.499 +54 03 48.10	EW	14.87	15.18		1.0737	2456927.338	min		Comm. 26	lc31744.png	ch31744.png	out31744.dat
27		2MASS 22461076+5328380	22 46 10.764 +53 28 38.06	SR:	13.35	13.49		59.6	2456923.8	max		Comm. 27	lc16876.png	ch16876.png	out16876.dat
28		2MASS 22461098+5412447	22 46 10.983 +54 12 44.72	EW	15.64	15.82		0.38657	2456928.127	min		Comm. 28	lc39747.png	ch39747.png	out39747.dat
29		2MASS 22461174+5313329	22 46 11.743 +53 13 32.92	EW	16.29	16.75		0.41544	2456929.247	min		Comm. 29	lc10944.png	ch10944.png	out10944.dat
30		2MASS 22461700+5333039	22 46 17.001 +53 33 03.95	EW	15.58	15.83		0.34926	2456928.124	min		Comm. 30	lc19023.png	ch19023.png	out19023.dat
31		2MASS 22462507+5416558	22 46 25.074 +54 16 55.81	EW	13.36	13.42		0.68802	2456917.529	min		Comm. 31	lc56211.png	ch56211.png	out56211.dat
32		2MASS 22464776+5453461	22 46 47.763 +54 53 46.15	LB	12.30	12.46				other		Comm. 32	lc37262.png	ch37262.png	out37262.dat
33		2MASS 22465309+5358444	22 46 53.092 +53 58 44.50	BCep	12.39	12.43		0.54223	2456894.282	max			lc29204.png	ch29204.png	out29204.dat
34		2MASS 22470097+5252338	22 47 00.977 +52 52 33.84	EA	15.23	15.65		2.3786	2456934.252	min			lc02280.png	ch02280.png	out02280.dat
35		2MASS 22471267+5501098	22 47 12.670 +55 01 09.87	EW	16.41	17.07		0.24001	2456928.238	min		Comm. 35	lc34370.png	ch34370.png	out34370.dat
36		2MASS 22472426+5443010	22 47 24.262 +54 43 01.01	EA	14.78	15.45		4.0817	2456907.11	min			lc46036.png	ch46036.png	out46036.dat
37		2MASS 22472546+5258001	22 47 25.460 +52 58 00.14	EA	13.90	13.99		4.7972	2456928.272	min		Comm. 37	lc04236.png	ch04236.png	out04236.dat
38		2MASS 22472590+5407249	22 47 25.908 +54 07 24.91	EW	12.9	12.99		0.400092	2456928.123	min		Comm. 38	lc42235.png	ch42235.png	out42235.dat
39		2MASS 22474023+5404432	22 47 40.237 +54 04 43.24	BY	13.83	13.89		2.335	2456927.754	max			lc31682.png	ch31682.png	out31682.dat
40		2MASS 22474631+5436463	22 47 46.314 +54 36 46.33	EW	14.44	14.76		0.379751	2456928.489	min		Comm. 40	lc48959.png	ch48959.png	out48959.dat
41		2MASS 22475801+5421005	22 47 58.016 +54 21 00.53	LB	13.14	13.30				other		Comm. 41	lc55120.png	ch55120.png	out55120.dat
42		2MASS 22480951+5253008	22 48 09.511 +52 53 00.88	LB	13.14	13.62				other		Comm. 42	lc02051.png	ch02051.png	out02051.dat
43		2MASS 22483237+5425461	22 48 32.376 +54 25 46.14	EW	15.17	15.51		0.402537	2456928.335	min		Comm. 43	lc53255.png	ch53255.png	out53255.dat
44		2MASS 22483511+5359566	22 48 35.120 +53 59 56.62	LB	12.31	12.39				other		Comm. 44	lc29280.png	ch29280.png	out29280.dat
45		2MASS 22483941+5402365	22 48 39.418 +54 02 36.60	EB	16.08	16.75		0.42910	2456928.323	min		Comm. 45	lc30724.png	ch30724.png	out30724.dat
46		2MASS 22484109+5336474	22 48 41.097 +53 36 47.48	EW	14.01	14.35		0.336175	2456928.256	min		Comm. 46	lc19873.png	ch19873.png	out19873.dat
47		2MASS 22484376+5314071	22 48 43.770 +53 14 07.20	EB	13.16	13.19		0.69342	2456894.162	min		Comm. 47	lc10382.png	ch10382.png	out10382.dat
48	GSC 03984-00503	2MASS 22484477+5415057	22 48 44.778 +54 15 05.73	EB	13.08	13.5		0.496897	2456927.164	min		Comm. 48	lc39303.png	ch39303.png	out39303.dat
49		2MASS 22484526+5340053	22 48 45.264 +53 40 05.32	EA	15.41	<15.8		0.95191	2456927.765	min		Comm. 49	lc21273.png	ch21273.png	out21273.dat

Comments:

1. $\text{Min}_{\text{II}} = 15^{\text{m}}.85$.

4. $\text{Min}_{\text{II}} = 13^{\text{m}}.23$.

6. J=7^m.843, H=7^m.751, K=7^m.327 (2MASS).

7. $\text{Min}_{\text{II}} = 12^{\text{m}}.11$.

8. $\text{Min}_{\text{II}} = 12^{\text{m}}.75$.

9. $\text{Min}_{\text{II}} = 16^{\text{m}}.9$.

10. $J=7^{\text{m}}.843$, $H=6^{\text{m}}.740$, $K=6^{\text{m}}.294$ (2MASS).

The object is in the NSVS database: [NSVS ID 3463164](#).

14. $J=11^{\text{m}}.000$, $H=10^{\text{m}}.375$ $K=10^{\text{m}}.228$ (2MASS).

15. $J=10^{\text{m}}.849$, $H=9^{\text{m}}.860$ $K=9^{\text{m}}.563$ (2MASS).

16. $J=10^{\text{m}}.314$, $H=9^{\text{m}}.238$ $K=8^{\text{m}}.959$ (2MASS).

20. $J=9^{\text{m}}.731$, $H=8^{\text{m}}.734$ $K=8^{\text{m}}.442$ (2MASS).

23. $\text{Min}_{\text{II}} = 14^{\text{m}}.98$.

24. $J=8^{\text{m}}.770$, $H=7^{\text{m}}.790$ $K=7^{\text{m}}.479$ (2MASS).

25. $\text{Min}_{\text{II}} = 15^{\text{m}}.25$.

26. $\text{Min}_{\text{II}} = 15^{\text{m}}.08$.

27. $J=10^{\text{m}}.515$, $H=9^{\text{m}}.600$ $K=9^{\text{m}}.321$ (2MASS).

28. $\text{Min}_{\text{II}} = 15^{\text{m}}.81$.

29. $\text{Min}_{\text{II}} = 16^{\text{m}}.75$.

30. $\text{Min}_{\text{II}} = 15^{\text{m}}.80$.

31. $\text{Min}_{\text{II}} = 13^{\text{m}}.41$.

32. $J=8^{\text{m}}.851$, $H=7^{\text{m}}.830$ $K=7^{\text{m}}.499$ (2MASS).

35. $\text{Min}_{\text{II}} = 17^{\text{m}}.02$.

37. $\text{Min}_{\text{II}} = 13^{\text{m}}.96$.

38. $\text{Min}_{\text{II}} = 12^{\text{m}}.98$.

40. $\text{Min}_{\text{II}} = 14^{\text{m}}.74$.

41. $J=9^{\text{m}}.763$, $H=8^{\text{m}}.738$ $K=8^{\text{m}}.434$ (2MASS).

42. $J=8^{\text{m}}.887$, $H=7^{\text{m}}.878$ $K=7^{\text{m}}.494$ (2MASS).

43. $\text{Min}_{\text{II}} = 15^{\text{m}}.43$.

44. $J=9^{\text{m}}.288$, $H=8^{\text{m}}.341$ $K=8^{\text{m}}.081$ (2MASS).

45. $\text{Min}_{\text{II}} = 16^{\text{m}}.30.$

46. $\text{Min}_{\text{II}} = 14^{\text{m}}.35.$

47. $\text{Min}_{\text{II}} = 13^{\text{m}}.17.$

48. $\text{Min}_{\text{II}} = 13^{\text{m}}.33.$

49. $\text{Min}_{\text{II}} = 15^{\text{m}}.66.$

Remarks:

We present the first part of the list of variable stars in Lacerta: area of $2^{\circ}.3 \times 2^{\circ}.3$, centered at $\alpha=22^{\text{h}}50^{\text{m}} \delta=54^{\circ}00'$ (2000.0). Some of objects are newly discovered, some are already known from massive surveys like ZTF and ASAS-SN. GW Lac was discovered by C. Hoffmeister (1967), but had no period.

Our observations of the field in Lacerta were performed at the observatory of Reshetnev Siberian State University of Science and Technology with a Hamilton telescope ($D = 400 \text{ mm}$, $F = 915 \text{ mm}$), equipped with an FLI ML9000 CCD chip (3056×3056 pixels, pixel size $12 \mu\text{m}$). Exposures of all frames were 30 seconds. A CCD-image covers $2^{\circ}.3 \times 2^{\circ}.3$ of the sky.

We obtained all unfiltered CCD-observations during two periods: August–October 2012 and September–October 2014.

The magnitudes were referred to unfiltered red band of comparison stars from the UCAC4 catalog (Zacharias et al. 2013). We used [VaST](#) software (Sokolovsky & Lebedev 2018) to search for variable stars. To search for periods, we applied WinEfk software provided by V.P. Goranskij.

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