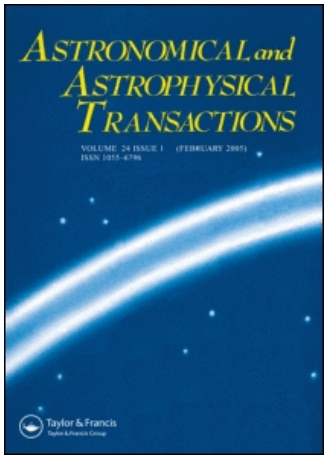

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A CATALOGUE OF STARS IN THE FIELD OF THE X-RAY TRANSIENT SOURCE KS 1947+300

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A catlogue of astrometric coordinates and photographic magnitudes of 188 stars in the 6 arcminute field around the X-ray source KS 1947+300 ($\alpha = 19^h49^m34^s$, $\delta = +30°12'22''$, FK5, J2000) is given. Two charts with radii 40′ and 6′ showing stars around KS 1947+300 are presented. Some stars from this catalogue could be of interest for astrophysical investigation with large telescopes and CCD-detectors in order to identify and to study this X-ray source.

KEY WORDS Catalogue od stars, identification of X-ray sources

To clearfy the nature of gamma bursts and X-ray sources, it is necessary to reliably identify these sources with astrophysical objects observed in other wavelength bands for investigation of associated phenomena. So far only a small number of registered X-ray sources have identifications with objects which have peculiarities observed in the optical and radio range [1–3]. For a long time the registration accuracy of directions to X-ray sources amounted to several degrees, and most powerful sources were identified thanks coincidence of epochs or periods of phenomena in optical and radio range accompanying X-ray flux. These are Sco X-1, Crab, Vela- X-1 and some other sources.

On 31 March, 1987 the astrophysical module KVANT with the TTM telescope (a telescope with a shady coding mask), which has a sufficiently good angular resolution ($\sim 2'$) [4], was launched onto the orbit around the Earth. The TTM was elaborated by specialists from the Space Research Laboratory (Utrecht, the Netherlands) and the University of Birmingham (England). This telescope is for observations of images at the 2–30 Kev X-Ray range and it has a 7.8 × 7.8 degrees field of view. Several thousand X-Ray sources are accessible for research with high sensitive detectors of the TTM telescope.

The majority of gamma and X-ray sources discovered in 1987–1989 with the TTM telescope are situated in the southern hemisphere. The only Kvant X-ray source KS 1947+300 is accessible for observations in Pulkovo. This source was registered in the south-western part the constellation of Cygnus, its coordinates are [5]:

Table 1. The characteristics of plates and standard reduction errors for coordinates and magnitudes

Date	*Plate No*	*Expos. time*	*Plate type*	*Number of refer. stars*	*Errors of reduction*		*Photometry*	
					σx	σy	*Number of comp. stars*	*error of m*
1991		*m*			//	//		*m*
24 Apr	16542	20	Zu-21	21	±.296	±.300	56	±.18
6 May	16547*	20	Zu-21	19	.316	.314	74	.18
7 May	16551	10	Zu-21	19	.296	.358	52	.21
2 Sep	16576	30	Zu-1Г	21	.330	.279	48	.20

Note. * – plate for photometry with diffraction grating.

$\alpha = 19^h47^m35^s2$, $\delta = +30°04'07''$, system FK4, equinox B1950.0,
$\alpha = 19^h49^m34^s1$, $\delta = +30°12'22''$, system FK5, equinox J2000.0.
The accuracy of positions of relatively bright X-ray sources Cyg X-1 and GS 2023+338 is about 0.5′. The flux from the X-ray source KS 1947+300 reached 70±10 mCrab on the first day of its discovery and it decreased to 10 mCrab during two months of observations.

Four plate of the region of KS 1947+300 were taken in 1991 with Pulkovo normal astrograph (33/346) to provide stellar coordinates. The plate of the astrograph has a 2° × 2° field and a scale 59.6″/mm. Exposure time of about twenty minutes with good guiding guarantees limiting magnitude better than 15–16. The plates No. 16576 (with 30 minutes exposition) and No. 16547 (with objective diffraction grating) have good quality (Table 1). Two other plates have somewhat blurred images of stars; Plate No. 16542 has dark background and plate No. 16551 is underexposed (as a consequence, some faint stars are not measurable).

Astrometric measurements of plates have been carried out with the semiautomatic machine "ASCORECORD" with accuracy to 2–3 μm (0.12″–0.18″) and the photometric ones, with "ASCORIS". The reduction of coordinates uses the method of eight constants for connection between measured and tangential coordinates. For astrometric reductions, 19–21 reference stars were taken from the PPM catalogue, which provided accuracy about 0.3″ for both coordinates.

Table 2. Variable stars near the X-ray source KS 1947+300

No.	*Name*	*RA*	FK5, *J2000*	DE	*Range*	*Type*	*Sp*	*Period*
1.	V990 Cyg	$19^h49^m09^s0$		$+30°09'51''.7$	$14^m.0$–$15^m.0$	Lb		
2.	V989 Cyg	19 48 38.1		30 02 37.6	15.0–15.9	Lb		~100d
3.	ER Cyg	19 49 13.6		30 24 16.0	13.4–16.3	M	M8	330.8d
4.	V1151 Cyg	19 47 50.3		29 51 34.4	13.8–14.3	E		168.82d
5.	V998 Cyg	19 49 44.1		30 47 36.1	14.1–15.1	SRb	>M	40–60d

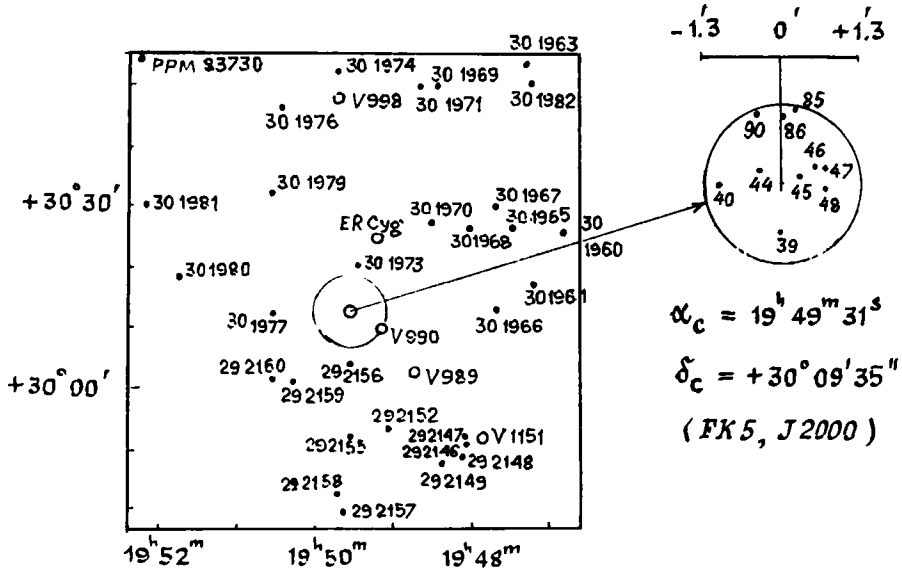

Figure 1 The chart of reference stars around the X-ray source KS 1947+300. Known variable stars are indicated with circles. The central part of field ($R = 1.5'$) is taken out.

In the field of 6′ radius around the X-ray source, the photographic equatorial coordinates for 188 stars (12^m–16^m) have been obtained for the mean epoch of observation 1991.419 (system FK5, equinox J2000). The coordinates and magnitudes of stars have been obtained as mean values from individual determinations for each plate where the star was measurable. The average accuracy of coordinates amounts to ±0.013s for RA and to ±0.19″ for each star from 10.34^m to 15^m.

The photographic magnitudes have been obtained in the instrumental system of the normal astrograph, which is similar to B band of UBV system. The magnitudes of stars (from 48 to 74 stars) from AGK3 catalogue were used for photometric reductions. To extend the characteristic curve into the region of faint stars, we have used magnitudes of the first diffraction components of bright stars. These components are fainter than the central image by 4.2^m. The photoelectric photometry of 3 stars described [6] were also used for this purpose. The external error of magnitudes obtained amounts to about ±0.20 m (Table 1) and the internal errors vary from 0.02^m to 0.12^m.

The field of reference and variable stars and the field of all measured stars in the 6′ radius near the localization centre of KS 1947+300 are shown in Figure 1 and Figure 2. The positions of 10 stars within $R < 1.5'$ from KS 1947+300 are also shown in Figure 1, in the circle inside the square field, and the list of them is presented in the first part of Table 3. In this region several stars were already studied with the 50 cm and the 60 cm telescopes of Crimean laboratory of Sternberg Astronomical Institute. For these stars, spectra and UBV magnitudes were obtained,

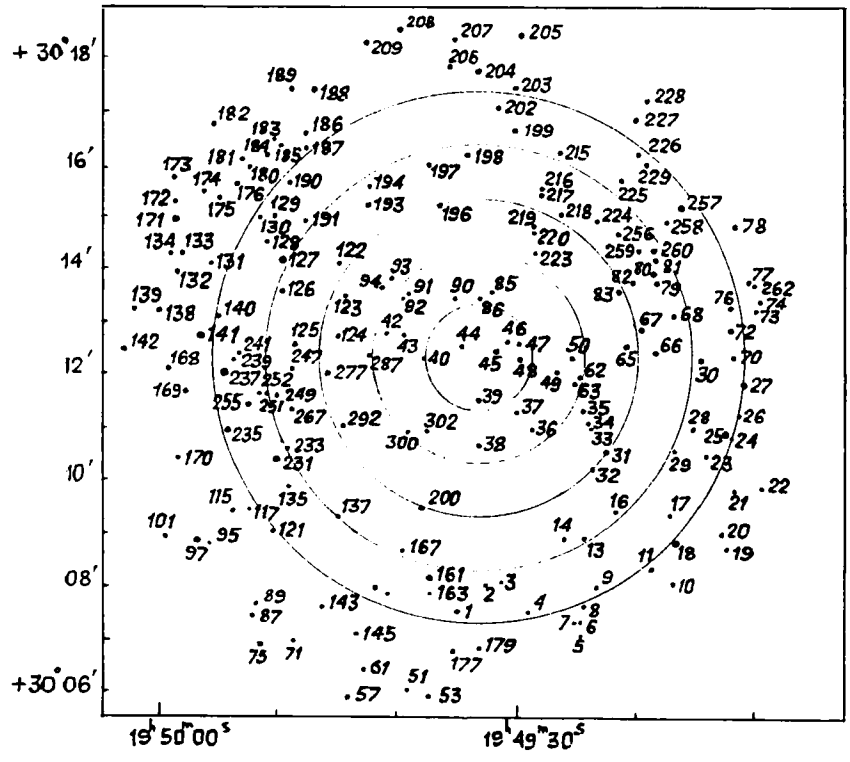

Figure 2 The chart of all 188 stars of the catalogue within 7′ radius around the X-ray source KS 1947+300.

and the brightness of one star was monitored for a month [6]. It was found that the star No. 45 (number from our catalogue); $M_{\rm ph} = 14.80^m$ was double; its brighter component has $B = 15.07$ ($V = 14.35$, $B - V = 0.59$ [6]) and is included in our catalogue, another component is fainter (17.45 m) and is absent on our plates.

The star No. 46 with $M_{\rm ph} = 13.57^m$ ($V = 13.08$, $B-V = +0.49$, $U-B = +0.28$ [6]) might be classified as a luminosity class I star from the two-colour diagram. Star No. 44 with $M_{\rm ph} = 14.79^m$ ($V = 14.26$, $B - V = +0.86$, $U - B = -0.34$) is most interesting because it has a powerful ultraviolet excess and emission in the H_α line was found in its spectrum. However, during one month of observations no obvious changes of brightness, generally observed for the majority of optically identified objects with X-Ray radiation, were noted. The spectrum of the star No. 44 is similar to the spectrum of BQ Cam connected with X-Ray source X 0331+53 [6].

Taking into account of TTM instrumental accuracy (1.86′), the zone of search was extended to $3\sigma = 6'$. On the border of this zone, a poorly studied variable star V 990 Cyg (No. 22, $M_{\rm ph} = 14.37^m$, $RA = 19^h49^m09^s.414$, $DE = 30°09'50''.75$) has been found, which belongs to Lb type [7]. Lb stars are slowly changing irregular variable stars of late spectral types (K, M, C, or S), as a rule they are giants. It is

Table 3. The catalogue of magnitudes and positions for 188 stars near the transient X-ray source KS 1947+300

No. star	*Photographic magnitudes*		*Astrometric equatorial coordinates equinox J2000, FK5*								*N*
	Mag	± *err*	*RA*			± *err*	*DE*			± *err*	
$R < 1.5'$	*m*	*m*	*h*	*m*	*s*	*s*	°	′	″	″	
047	15.00	±.04	19	49	30.436	±.006	+30	12	37.03	±.16	4
048	15.34	.09	19	49	30.437	.007	30	12	13.93	.25	3
046	13.57	.05	19	49	31.505	.009	30	12	35.25	.11	4
045	14.80	.03	19	49	32.652	.019	30	12	28.45	.14	4
085	14.95	.03	19	49	32.947	.008	30	13	33.96	.11	4
086	15.41	.03	19	49	33.662	.024	30	13	27.50	.29	3
039	15.53	.02	19	49	34.089	.009	30	11	29.92	.30	2
044	14.79	.04	19	49	35.497	.010	30	12	31.38	.17	4
090	15.47	.03	19	49	36.098	.010	30	13	28.78	.15	3
040	15.40	.01	19	49	38.955	.011	30	12	14.70	.05	4
$R = 2'$											
062	15.44	±.05	19	49	25.461	±.014	30	11	57.27	±.31	3
063	15.29	.07	19	49	25.803	.016	30	11	49.75	.24	4
050	15.34	.04	19	49	25.833	.017	30	12	18.29	.19	4
049	15.44	.05	19	49	27.252	.021	30	12	07.14	.24	3
036	15.43	.05	19	49	29.460	.014	30	10	58.11	.06	4
037	14.95	.03	19	49	30.845	.010	30	11	19.43	.12	4
038	15.43	.02	19	49	33.967	.001	30	10	39.01	.22	3
302	14.43	.03	19	49	38.389	.013	30	10	55.92	.03	4
300	14.91	.02	19	49	40.068	.021	30	10	55.75	.16	4
091	15.21	.05	19	49	40.096	.021	30	13	31.36	.09	4
043	15.42	.05	19	49	40.380	.011	30	12	46.19	.09	4
092	15.42	.03	19	49	40.439	.018	30	13	27.98	.15	3
042	15.29	.07	19	49	42.065	.014	30	12	45.26	.05	4
287	14.88	.04	19	49	43.450	.016	30	12	24.24	.17	4
$R = 3'$											
067	13.41	±.02	19	49	19.420	±.009	30	12	49.92	±.10	4
082	15.10	.02	19	49	20.662	.018	30	13	41.82	.09	4
065	15.41	.02	19	49	21.216	.023	30	12	32.82	.30	3
083	14.62	.03	19	49	21.692	.011	30	13	32.31	.18	4
031	15.15	.07	19	49	22.867	.020	30	10	30.90	.06	4
032	15.48	.06	19	49	23.938	.018	30	10	15.97	.32	3
033	13.97	.02	19	49	24.403	.002	30	11	01.31	.07	4
034	14.93	.02	19	49	24.480	.011	30	11	07.75	.13	4
035	15.15	.07	19	49	24.947	.016	30	11	20.16	.13	4
218	14.71	.05	19	49	26.794	.011	30	15	05.05	.01	4
216	15.27	.04	19	49	28.578	.010	30	15	33.78	.10	3
217	15.18	.06	19	49	28.782	.014	30	15	24.37	.28	4
219	13.95	.03	19	49	29.115	.018	30	14	50.82	.04	4
220	14.81	.07	19	49	29.237	.011	30	14	45.46	.04	3
222	15.39	.03	19	49	29.278	.027	30	14	16.04	.35	3
196	15.18	.05	19	49	37.295	.018	30	15	15.83	.26	4
200	14.59	.04	19	49	39.207	.019	30	09	26.80	.12	4
093	14.94	.02	19	49	41.673	.010	30	13	46.55	.04	4
094	15.43	.04	19	49	42.371	.014	30	13	41.19	.24	3
123	15.32	.04	19	49	45.670	.021	30	13	26.06	.16	4
292	15.26	.05	19	49	45.783	.023	30	10	59.28	.12	4
122	15.00	.04	19	49	46.005	.023	30	14	03.88	.18	4

Table 3. Continued

No. star	*Photographic magnitudes*		*Astrometric equatorial coordinates equinox J2000, FK5*								*N*
	Mag	± *err*	*RA*			± *err*	*DE*			± *err*	
	m	*m*	*h*	*m*	*s*	*s*	°	′	″	″	
124	15.38	.01	19	49	46.265	.010	30	12	43.66	.30	3
277	15.39	.09	19	49	47.302	.018	30	12	02.09	.27	4
$R = 4'$											
068	15.58	±.02	19	49	16.939	±.005	30	13	06.19	±.15	3
029	15.34	.02	19	49	17.050	.024	30	10	32.08	.25	3
066	15.42	.02	19	49	18.463	.016	30	12	28.45	.10	3
079	14.87	.02	19	49	18.538	.012	30	13	41.74	.23	3
080	14.87	.04	19	49	18.735	.006	30	13	54.43	.17	4
081	14.90	.03	19	49	18.747	.014	30	14	09.20	.15	4
259	15.45	.02	19	49	20.186	.007	30	14	22.41	.19	3
256	15.42	.05	19	49	21.755	.014	30	14	44.10	.25	4
016	15.27	.06	19	49	22.269	.019	30	09	25.93	.18	4
224	15.48	.06	19	49	23.894	.005	30	14	53.80	.09	2
013	14.82	.06	19	49	24.968	.004	30	08	54.75	.19	3
014	15.31	.05	19	49	26.730	.007	30	08	53.25	.11	4
198	15.09	.07	19	49	34.936	.016	30	16	11.43	.27	4
197	15.10	.07	19	49	38.229	.021	30	16	00.21	.15	4
167	15.40	.06	19	49	40.439	.006	30	08	43.75	.18	4
194	15.21	.03	19	49	43.378	.018	30	15	35.77	.31	4
193	15.40	.07	19	49	43.510	.022	30	15	14.27	.02	3
137	14.73	.02	19	49	46.333	.009	30	09	17.55	.13	4
125	15.36	.11	19	49	50.002	.012	30	12	33.28	.15	4
267	15.43	.06	19	49	50.159	.008	30	11	18.42	.23	3
247	15.14	.06	19	49	50.198	.015	30	12	07.35	.12	4
233	14.79	.04	19	49	50.755	.016	30	10	36.36	.18	4
126	15.43	.04	19	49	50.833	.033	30	13	37.56	.05	2
127	12.34	.03	19	49	50.930	.001	30	14	08.94	.03	4
249	15.36	.03	19	49	51.651	.020	30	11	33.99	.29	3
251	15.33	.08	19	49	52.482	.019	30	11	36.40	.15	4
$R = 5'$											
027	14.10	±.04	19	49	11.141	±.007	30	11	48.79	±.10	4
026	14.41	.03	19	49	11.575	.005	30	11	14.07	.05	4
070	15.44	.06	19	49	11.993	.010	30	12	22.86	.14	4
024	14.25	.02	19	49	12.115	.016	30	10	44.07	.09	4
076	15.53	.12	19	49	12.207	.007	30	13	19.62	.21	4
072	15.24	.06	19	49	12.214	.023	30	12	51.41	.22	4
025	12.77	.03	19	49	12.508	.013	30	10	53.04	.08	4
023	14.01	.04	19	49	14.326	.009	30	10	27.82	.12	4
030	14.93	.03	19	49	14.751	.017	30	12	14.70	.24	4
028	15.16	.04	19	49	15.557	.011	30	10	56.88	.17	4
257	13.21	.03	19	49	16.326	.009	30	15	13.50	.10	3
017	14.57	.03	19	49	17.348	.020	30	09	22.46	.13	4
258	15.00	.05	19	49	17.743	.010	30	14	56.79	.21	4
260	15.49	.08	19	49	18.914	.024	30	14	22.47	.19	3
229	15.47	.05	19	49	19.465	.013	30	16	01.51	.12	3
226	15.22	.04	19	49	20.298	.005	30	16	10.35	.06	3
225	14.45	.03	19	49	21.845	.013	30	15	43.21	.15	4
009	15.33	.06	19	49	23.827	.012	30	07	58.35	.27	3
221	14.71	.05	19	49	26.795	.019	30	15	04.98	.12	4

Table 3. Continued

No. star	Photographic magnitudes Mag	± err	Astrometric equatorial coordinates equinox J2000, FK5 RA	± err	DE	± err	N
	m	m	h m s	s	° ′ ″	″	
215	15.34	.01	19 49 26.825	.004	30 16 11.58	.10	3
004	15.38	.07	19 49 29.595	.019	30 07 32.33	.14	2
199	14.03	.07	19 49 31.001	.000	30 16 38.52	.07	4
003	15.43	.05	19 49 31.874	.016	30 08 04.63	.21	3
202	14.65	.02	19 49 32.530	.015	30 17 08.20	.13	4
002	15.53	.08	19 49 33.328	.025	30 08 01.46	.23	3
001	15.52	.04	19 49 35.875	.020	30 07 29.15	.07	3
163	14.87	.06	19 49 38.162	.018	30 07 51.30	.08	4
161	11.87	.06	19 49 38.177	.011	30 08 08.63	.06	4
157	15.44	.03	19 49 41.948	.021	30 07 52.72	.27	3
159	15.23	.07	19 49 42.842	.013	30 07 56.23	.13	4
187	14.74	.03	19 49 48.696	.013	30 16 14.40	.19	4
191	15.39	.05	19 49 49.036	.021	30 14 58.06	.32	3
190	15.04	.05	19 49 50.480	.008	30 15 39.06	.11	4
135	15.10	.05	19 49 50.711	.009	30 09 54.20	.20	4
231	13.29	.05	19 49 51.674	.013	30 10 23.98	.05	4
129	15.09	.06	19 49 51.728	.012	30 15 03.08	.18	4
121	15.03	.06	19 49 51.935	.011	30 09 04.81	.23	4
128	14.25	.05	19 49 52.416	.012	30 14 31.21	.07	4
130	14.72	.08	19 49 52.685	.012	30 14 58.93	.11	4
252	15.43	.04	19 49 52.851	.014	30 11 37.26	.31	4
255	15.51	.05	19 49 54.047	.009	30 11 25.11	.10	4
241	15.22	.04	19 49 54.713	.024	30 12 25.47	.19	3
239	14.08	.05	19 49 55.220	.010	30 12 15.20	.08	4
235	14.15	.02	19 49 55.883	.008	30 10 53.24	.10	4
237	13.16	.04	19 49 56.064	.008	30 12 00.77	.10	4
140	15.30	.07	19 49 56.384	.025	30 13 05.44	.23	4
$R > 5'$							
022	14.37	±.07	19 49 09.414	±.008	30 09 50.75	±.12	4
074	15.15	.04	19 49 09.703	.009	30 13 20.22	.13	4
073	15.25	.04	19 49 10.047	.022	30 13 12.51	.14	3
262	15.47	.06	19 49 10.282	.002	30 13 48.88	.18	4
077	15.38	.07	19 49 10.819	.008	30 13 44.69	.16	3
078	15.33	.09	19 49 11.840	.025	30 14 51.88	.19	3
021	15.40	.09	19 49 11.872	.013	30 09 48.66	.27	4
019	14.52	.08	19 49 12.538	.004	30 08 42.53	.09	4
020	13.40	.02	19 49 12.702	.009	30 09 01.10	.12	4
018	10.34	.05	19 49 16.846	.002	30 08 52.07	.08	4
010	15.40	.02	19 49 17.044	.023	30 08 03.44	.22	3
228	15.01	.06	19 49 19.531	.005	30 17 12.26	.23	4
011	15.20	.02	19 49 19.614	.022	30 08 13.29	.33	3
227	15.15	.04	19 49 20.451	.009	30 16 51.62	.19	4
008	15.41	.06	19 49 25.101	.010	30 07 39.75	.32	3
005	15.03	.06	19 49 25.163	.018	30 07 02.11	.13	4
006	15.14	.01	19 49 25.187	.007	30 07 18.91	.18	3
007	15.19	.07	19 49 25.567	.018	30 07 17.31	.22	4
205	14.21	.05	19 49 30.247	.012	30 18 28.99	.11	4
203	15.35	.10	19 49 30.790	.021	30 17 28.87	.17	4
179	15.25	.08	19 49 34.020	.020	30 06 51.04	.22	3

Table 3. Continued

No. star	*Photographic magnitudes*		*Astrometric equatorial coordinates equinox J2000, FK5*				*N*
	Mag	± *err*	*RA*	± *err*	*DE*	± *err*	
	m	*m*	*h m s*	*s*	° ′ ″	″	
204	15.08	.10	19 49 34.030	.018	30 17 46.56	.05	3
207	15.25	.06	19 49 35.973	.014	30 18 24.20	.17	4
177	15.38	.10	19 49 36.158	.008	30 06 52.61	.14	3
206	15.15	.07	19 49 36.482	.008	30 17 52.56	.04	4
053	14.04	.03	19 49 38.239	.016	30 05 56.79	.09	4
051	15.27	.06	19 49 40.391	.023	30 06 01.05	.16	4
208	14.25	.09	19 49 41.068	.014	30 18 33.10	.07	4
209	15.13	.09	19 49 43.807	.008	30 18 17.95	.24	4
061	14.85	.04	19 49 43.893	.014	30 06 26.22	.16	4
145	15.32	.03	19 49 44.443	.018	30 07 07.77	.20	4
057	15.12	.02	19 49 45.546	.023	30 05 52.68	.25	4
143	15.37	.08	19 49 47.733	.009	30 07 33.51	.19	4
188	12.88	.08	19 49 48.271	.013	30 17 27.46	.13	4
186	13.40	.03	19 49 49.029	.011	30 16 34.93	.08	4
071	15.28	.02	19 49 50.129	.011	30 06 57.64	.09	4
189	15.01	.05	19 49 50.311	.013	30 17 24.52	.09	4
185	15.14	.04	19 49 51.126	.014	30 16 20.35	.15	4
183	15.24	.04	19 49 51.867	.011	30 16 28.10	.31	3
184	15.26	.06	19 49 52.264	.016	30 16 09.15	.23	4
075	15.24	.05	19 49 52.925	.023	30 06 51.71	.14	4
089	14.52	.04	19 49 53.359	.010	30 07 39.74	.09	4
180	14.40	.04	19 49 53.693	.014	30 15 56.02	.13	4
087	15.18	.02	19 49 53.702	.019	30 07 25.31	.07	3
117	14.74	.04	19 49 53.957	.013	30 09 26.81	.11	4
181	13.91	.03	19 49 54.581	.010	30 16 07.80	.19	4
176	14.72	.02	19 49 54.954	.009	30 15 37.44	.18	4
115	15.02	.05	19 49 55.299	.018	30 09 24.13	.12	4
175	15.26	.04	19 49 56.465	.016	30 15 20.66	.16	3
182	14.54	.02	19 49 56.876	.013	30 16 44.97	.13	4
131	15.20	.07	19 49 57.062	.022	30 14 06.18	.09	4
095	15.29	.02	19 49 57.311	.013	30 08 46.99	.11	4
174	15.09	.05	19 49 57.511	.019	30 15 28.57	.21	4
141	12.35	.05	19 49 57.983	.007	30 12 44.08	.11	3
097	12.73	.03	19 49 58.641	.014	30 08 52.69	.10	4
169	15.37	.08	19 49 59.491	.005	30 11 41.17	.13	4
133	15.27	.07	19 49 59.629	.022	30 14 19.80	.30	4
170	15.03	.05	19 49 59.803	.002	30 10 28.35	.06	4
132	14.84	.04	19 49 59.841	.007	30 13 58.13	.09	4
171	12.48	.04	19 50 00.257	.007	30 15 00.17	.05	4
172	13.75	.04	19 50 00.341	.012	30 15 20.17	.11	4
173	14.96	.04	19 50 00.446	.012	30 15 45.01	.17	4
134	14.88	.02	19 50 00.584	.010	30 14 18.03	.10	3
168	15.30	.07	19 50 00.810	.011	30 12 06.82	.20	4
101	15.23	.06	19 50 01.130	.014	30 08 56.36	.26	4
138	13.93	.06	19 50 01.965	.015	30 13 12.88	.10	4
139	14.82	.06	19 50 03.064	.012	30 13 12.05	.06	4
142	14.52	.05	19 50 04.846	.008	30 12 27.19	.11	4

known the region of Cygnus is rich in variable stars. If we consider a 40–50′ field around our source, 5 variable stars are be found, their list, with types indicated, given in Table 2. The characteristics of these stars were taken from the General catalogue of variable stars [7]. Their positions are shown in Figure 1.

Positions of all 188 stars within the field of 6–7′ radius around the X-ray source are given in Figure 2 and in the catalogue (Table 3). The catalogue is separated into several circular zones relative to the centre of localization. Table 3 contains: star numbers from measurements of plate 16576 photographed with maximum exposure time; M_{ph} magnitudes and equatorial coordinates, with errors of mean values and the quantity of plates used for their calculation.

The coordinates of stars in the field of the X-ray source may be used for observations and for determinations of fainter objects with large telescopes and CCD detectors, in order to find the optical counterpart of KS 1947+300.

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