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WSP w Bydgoszczy

## EKSTYNKCJA ATMOSFERYCZNA W BYDGOSZCZY – II

### 1. Wprowadzenie

Istnieje kilka metod wyznaczania ekstynkcji atmosferycznej. Opierają się one bądź to na pomiarach promieniowania przechodzącego przez atmosferę ziemską w nocy, a więc mierzonym promieniowaniem jest promieniowanie wybranej gwiazdy lub grupy gwiazd, względnie obserwacje prowadzimy w dzień w oparciu o promieniowanie Słońca. W pierwszym przypadku w postaci tabel wyznaczamy dla danej miejscowości tzw. współczynnik ekstynkcji atmosferycznej  $k$  względnie współczynnik przezroczystości  $p$ ; w drugim przypadku wyznaczamy również w postaci tabel tzw. współczynnik zmętnienia  $0$ . Ogólnie, metody te polegają na naziemnych pomiarach natężenia promieniowania w wybranej długości fali  $\lambda$ , kilku długościach fal, względnie mierzymy całkowite promieniowanie przy kilku różnych położeniach obserwowanego ciała na niebie. Tablice średniej ekstynkcji atmosferycznej dla danej miejscowości zawierają wartość współczynnika ekstynkcji w zenicie oraz jego wartość w funkcji odległości zenitalnej  $z$  (częściej w funkcji mas powietrza  $F_z$ ). Wartość współczynnika ekstynkcji atmosferycznej uzależniona jest między innymi od wysokości miejsca obserwacji nad poziomem morza i od zawartości w dolnych warstwach atmosfery pary wodnej i innych składników zmieniających w czasie.

W niniejszej pracy przedstawiono wyniki wyznaczenia „nocnej” ekstynkcji atmosferycznej w Bydgoszczy w zakresie wizualnym. Mierzonym promieniowaniem było promieniowanie grupy gwiazd. Stosowano metodę Argelander’a wizualnego porównywania jasności gwiazd w funkcji odległości zenitalnych, dokładniej w funkcji mas powietrza.

Publikowane w tym artykule dane o ekstynkcji atmosferycznej w Bydgoszczy odnoszą się do okresu 1 IV–31 XII 1986 r. Wcześniejsze obserwacje (1 I–31 III 1986 r.) oraz szczegółowe informacje na temat metodologii badań przedstawiono w części I (W. Wegner – 1988).

### 2. Materiał obserwacyjny

Metoda Argelander’a polega na bezpośrednim porównaniu jasności jednej gwiazdy z jasnością innych. Jako jednostki używa się powszechnie „stopnia”, to jest miary najmniejszej różnicy jasności, dającej się jeszcze wykryć przez danego obserwatora. Jeżeli stwierdzimy, że dwie gwiazdy nie różnią się pod względem jasności, to zapisujemy  $x_1 x_2$ , jeśli stwierdzamy, że gwiazda  $x_1$  jest nieznacznie jaśniejsza od gwiazdy  $x_2$ , to zapisujemy  $x_1 1 x_2$ . Większe różnice oceniamy np. na 2, 3 itd. stopnia notując  $x_1 2 x_2$ ;  $x_1 3 x_2$ , itd. Autor wielokrotnie stosując metodę Argelander’a stwierdził (patrz Rys. 4 cz. I), że między jego stopniami a jasnościami gwiazd wyrażonymi w magnitudach istnieje liniowa zależność. Różnica jasności  $0^m 1$  odpowiada jednemu stopniowi autora.

Obserwacji wizualnych jasności gwiazd dokonywano w Bydgoszczy w każdą pogodną noc na stanowisku 1, 2 lub na obu. Stanowisko 1 znajdowało się w pobliżu placu przy Szpitalu Zakładów Chemicznych. Stanowisko 2 znajdowało się na placu szkolnym Szkoły Podstawowej Nr 14 przy ul. Żmudzkiej. Pewną liczbę obserwacji dokonano na terenie ogrodów

działkowych w Prądociu gmina Nowa Wieś Wielka (20 km od centrum Bydgoszczy w kierunku na Inowrocław – stanowisko 3).

Obserwacji jasności gwiazd (wykaz 76 gwiazd porównanie zamieszczono w cz. I – patrz Tabela 1) starano się dokonywać o tej samej godzinie czasu uniwersalnego (TU). Z uwagi na warunki miejsca obserwacji (wysokie drzewa, wieżowce) oceniano jasności gwiazd znajdujących się w odległościach zenitalnych nie przekraczających  $75^\circ$ . Jasności wizualne 76 gwiazd porównania zawierały się w granicach od  $V = 2^m$  do  $V = 3^m$ . Taki wybór jasnych gwiazd został podyktowany tym, że obserwacji wizualnych dokonywano w niewielkiej odległości od centrum oświetlonego nocą dużego miasta.

Przeważająca liczba obserwacji została wykonana zaraz po zapadnięciu zmroku na stanowisku 1 oddalonym od centrum miasta o około 8 km, obserwacje na stanowisku 2 (3 km od centrum miasta) przeprowadzono w pobliżu miejsca zamieszkania autora, gdy światła w okolicznych wieżowcach nie rozjaśniały zbyt mocno nocnego nieba.

W Tabeli 1 zamieszczono dane obserwacyjne i meteorologiczne. Dane meteorologiczne uzyskano na stacji meteorologicznej (1) IMUZ w Bydgoszczy ( $\varphi = 53^\circ 08'$ ,  $\lambda = 18^\circ 01'$ ,  $h = 46,5$  m). W kolumnie „Zachmurzenie” podano informację o stopniu zachmurzenia w 11 stopniowej skali (0 – oznacza brak chmur, 10 – niebo w 100 % zachmurzone) o godz. 18<sup>00</sup> czasu uniwersalnego i o godzinie 6<sup>00</sup> dnia następnego. W kolumnie „Kierunek i prędkość wiatru” literą C oznaczono „cisza”. Kolumna „Widzialność” zawiera ocenę przezroczystości atmosfery wg kryteriów zamieszczonych w Tabeli 3 (część I). W ostatniej kolumnie Tabeli 2 zamieszczono ocenę przezroczystości atmosfery notowaną przez różnych pracowników Obserwatorium Astronomicznego Uniwersytetu Mikołaja Kopernika w Toruniu. Ocena ta dotyczy miejscowości Piwnice, gdzie znajduje się Obserwatorium Astronomiczne.  $P_0$  oznacza bardzo przezroczystą atmosferę, z gwiazdami widocznymi aż po horyzont i czarnym tłem nieba,  $P_3$  – gwiazdy słabsze (około  $5^m$ ) są widoczne jedynie na małych odległościach zenitalnych.

Tabela 1. Dane obserwacyjne i meteorologiczne

Data	Zachmurzenie		Kierunek i prędkość m/s		Widzialność	Obs.Astr. UMK Piwnice k/Torunia
	18 <sup>h</sup>	TU 6 <sup>h</sup>				
1986 r.						
1 IV	0	10	C	0	5	
2 IV	4	10	C	0	5	P <sub>2</sub>
11 IV	7	0	C	0	6	
12 IV	6	0	C	0	5	
13 IV	5	10	C	0	6	
21 IV	4	1	C	0	5	P <sub>2</sub>
22 IV	5	4	C	0	6	
24 IV	2	0	C	0	6	
27 IV	5	0	C	0	6	
28 IV	0	3	NE	1	6	P <sub>2</sub>
29 IV	1	0	C	0	6	P <sub>2</sub>
1 V	0	0	C	0	6	P <sub>1</sub>
2 V	0	0	C	0	6	P <sub>1</sub>
3 V	0	0	NE	2	6	P <sub>2</sub>
4 V	2	2	E	3	6	P <sub>1</sub>
5 V	0	0	E	3	6	P <sub>1</sub>

1	2		3		4	5
6 V	0	0	E	5	6	P <sub>1</sub>
7 V	0	0	C	0	6	P <sub>2</sub>
10 V	6	10	C	0	6	
12 V	5	1	C	0	6	P <sub>2</sub>
13 V	5	2	SE	4	6	P <sub>3</sub>
16 V	0	8	C	0	6	
17 V	0	0	C	0	6	
20 V	6	0	C	0	6	P <sub>1</sub>
21 V	2	10	SE	1	6	
22 V	0	4	C	0	6	P <sub>1</sub>
25 V	4	2	C	0	5	
27 V	3	10	C	0	5	
6 VI	4	3	C	0	6	
8 VI	6	4	C	0	6	
9 VI	4	0	C	0	6	P <sub>2</sub>
10 VI	0	0	E	1	6	P <sub>2</sub>
11 VI	0	8	C	0	6	
13 VI	0	0	NE	2	5	
14 VI	0	0	E	0	6	
15 VI	0	0	NE	1	6	
16 VI	0	1	C	0	6	P <sub>1</sub>
17 VI	4	1	E	1	6	P <sub>1</sub>
19 VI	0	0	C	0	6	
20 VI	0	10	C	0	6	
22 VI	4	1	C	0	5	
23 VI	3	1	N	1	6	P <sub>1</sub>
24 VI	3	3	C	0	6	P <sub>1</sub>
25 VI	4	2	N	1	6	P <sub>1</sub>
26 VI	0	0	N	1	6	P <sub>1</sub>
27 VI	1	0	C	0	6	
28 VI	3	8	C	0	6	
30 VI	3	0	C	0	6	P <sub>1</sub>
1 VII	1	6	C	0	6	
2 VII	0	0	C	0	6	P <sub>1</sub>
3 VII	3	0	C	0	6	
9 VII	1	5	NW	2	6	
11 VII	6	10	W	1	6	P <sub>3</sub>
13 VII	5	10	C	0	6	
16 VII	4	5	C	0	6	P <sub>0</sub>
17 VII	1	7	C	0	6	P <sub>1</sub>
22 VII	6	0	C	0	6	
25 VII	2	10	W	1	6	
27 VII	1	0	C	0	6	

1	2		3		4	5
28 VII	0	0	C	0	6	
29 VII	1	10	SW	4	6	
30 VII	3	0	NW	3	6	P <sub>0</sub>
31 VII	4	10	SW	2	6	P <sub>1</sub>
2 VIII	2	0	S	1	7	
3 VIII	0	4	E	2	6	
6 VIII	0	3	C	0	6	
7 VIII	3	3	C	0	6	
8 VIII	5	10	C	0	6	
11 VIII	1	10	C	0	6	
13 VIII	0	0	NE	1	6	P <sub>0</sub>
14 VIII	0	0	C	0	6	P <sub>1</sub>
16 VIII	5	8	C	0	5	
21 VIII	6	8	C	0	5	
25 VIII	1	0	C	0	6	
9 IX	0	0	C	0	6	P <sub>0</sub>
14 X	3	3	C	0	6	
15 X	2	2	C	0	6	
16 X	2	2	C	0	6	
17 X	2	2	C	0	6	
24 X	3	3	C	0	6	P <sub>3</sub>
25 X	1	1	C	0	6	P <sub>1</sub>
2 XI	1	1	C	0	6	
3 XI	2	2	C	0	6	
6 XI	4	4	C	0	6	
9 XI	4	4	C	0	6	P <sub>2</sub>
11 XI	4	4	C	0	6	P <sub>2</sub>
12 XI	4	4	C	0	6	P <sub>2</sub>
18 XI	5	5	C	0	6	P <sub>3</sub>
2 XII	2	2	C	0	6	P <sub>1</sub>
3 XII	1	1	C	0	6	P <sub>1</sub>

W Tabeli 2 przedstawiono następujące dane: datę obserwacji, czas uniwersalny obserwacji (TU) oraz stanowisko obserwacji, azymut obserwowanych gwiazd, ciągi obserwacyjne jasności gwiazd wyrażone w stopniach, średni współczynnik ekstynkcji atmosferycznej w zakresie wizualnym oraz jego średni błąd.

W okresie od 1 I do 31 XII było 106 „nocy obserwacyjnych”, to jest nocy, w których przez okres 1 obserwacji (około 1/2 godz.) były widoczne gwiazdy.

Ogółem zanotowano 816 ciągów obserwacyjnych jasności gwiazd zawierających od 1 do 25 gwiazd w danym kierunku nieba. Z tej liczby 248 pomiarów przeprowadzono na stanowisku 1, 424 – na stanowisku 2, 144 – na stanowisku 3.

Szczupłość miejsca przeznaczonego na niniejszy artykuł nie pozwala na przeprowadzenie w nim szczegółowej analizy uzyskanych rezultatów. Szczegółowa analiza została przedstawiona na I międzynarodowej konferencji dydaktyków nt. „Dydaktyka Ochrony Środowiska

Tabela 2. Średni współczynnik ekstynkcji atmosferycznej  $k$  w zakresie wizualnym w Bydgoszczy

Data	TU	Obserwacje			$k$	
1	2	3	4	5		
1986r.						
1 IV	19 <sup>h</sup>	S	$x_{27}^3 x_{21}^1 x_{28}^1 x_{20}^2 x_{22}^2 x_{23}^2 x_{24}^2 x_{26}$		0.30±0.01	
		E	$x_{38}^x x_{42}^1 x_{29}^2 x_{30}^4 x_{40}^1 x_{50}^2 x_{39}^1 x_{36}^x x_{56}^2 x_{35}$			
		N	$x_{59}^x x_{71}$			
		W	$x_6^1 x_2^3 x_4^x x_{15}^2 x_{13}^1 x_{10}^x x_{12}^1 x_{11}^2 x_{19}^1 x_8^x x_{16}$			
	20 <sup>h</sup>	S	$x_{29}^1 x_{27}^1 x_{30}^1 x_{29}^4 x_{26}^1 x_{23}^x x_{24}$		0.28±0.02	
		E	$x_{38}^x x_{42}^5 x_{59}^1 x_{40}^x x_{50}^1 x_{39}^1 x_{36}^x x_{56}^1 x_{35}^3 x_{54}$			
		N	$x_{71}$			
	21 <sup>h</sup>	2	S	$x_{39}^2 x_{29}^1 x_{27}^x x_{30}^2 x_{28}^4 x_{26}^1 x_{35}^x x_{36}^5 x_{32}^3 x_{33}$		0.40±0.02
			E	$x_{42}^4 x_{40}^x x_{59}^3 x_{39}^x x_{50}^2 x_{56}^3 x_{56}^3 x_{54}^2 x_{51}$		
		N	$x_2^x x_{71}^1 x_{67}$			
		W	$x_{21}^2 x_{15}^1 x_{22}^x x_{23}^1 x_{10}^x x_{24}^1 x_{13}^3 x_{12}$			
	2 IV	19 <sup>h</sup>	S	$x_{29}^1 x_{27}^1 x_{30}^1 x_{28}^4 x_{22}^x x_{23}^x x_{24}^x x_{26}$		0.25±0.01
E			$x_{38}^1 x_{42}^4 x_{59}^1 x_{40}^2 x_{50}^1 x_{39}^1 x_{36}^x x_{56}^1 x_{35}$			
N			$x_{71}$			
W			$x_6^1 x_2^2 x_{21}^1 x_{15}^2 x_{13}^1 x_{10}^x x_{12}^1 x_{11}^3 x_8^x x_{19}$			
20 <sup>h</sup>		S	$x_{29}^1 x_{27}^1 x_{30}^1 x_{28}^4 x_{26}^1 x_{24}^x x_{36}^1 x_{35}$		0.35±0.02	
		E	$x_{38}^1 x_{42}^4 x_{59}^1 x_{40}^2 x_{50}^1 x_{39}^1 x_{56}^4 x_{54}$			
		N	$x_2^2 x_{71}$			
22 <sup>h</sup>		2	S	$x_{38}^x x_{42}^2 x_{29}^1 x_{27}^x x_{30}^1 x_{40}^2 x_{28}^1 x_{39}^2 x_{36}^1 x_{26}^x x_{35}^4 x_{32}^3 x_{33}$		0.45±0.02
			E	$x_{59}^3 x_{50}^2 x_{56}^1 x_{54}^1 x_{44}^x x_{51}^4 x_{67}^2 x_{43}$		
		N	$x_{71}^2 x_2$			
		W	$x_{21}^4 x_{23}^1 x_{22}^1 x_{15}^x x_{24}^3 x_{13}$			
11 IV		19 <sup>h</sup>	S	$x_{27}^x x_{29}^1 x_{30}^2 x_{28}^4 x_{22}^x x_{26}^1 x_{23}^x x_{24}$		0.58±0.04
	E		$x_{38}^x x_{42}^9 x_{40}^x x_{50}^x x_{59}^3 x_{36}^x x_{39}^1 x_{56}^3 x_{35}$			
	N		$x_{71}$			
	W		$x_{21}^1 x_2^1 x_6^x x_{15}^3 x_{10}^x x_{13}^1 x_{12}^4 x_{11}^5 x_8$			

1	2	3	4	5
	21 <sup>h</sup>	S	$x_{38}^2 x_{29}^1 x_{27} x_{30}^3 x_{28}^2 x_{39}^2 x_{26} x_{36}^1 x_{35}^5 x_{32}^3 x_{33}$	
	2	E	$x_{42}^4 x_{40} x_{59}^3 x_{50}^2 x_{56}^2 x_{54}^1 x_{51}^2 x_{44}^4 x_{67}$	
		N	$x_{71}^1 x_2$	0.50±0.03
		W	$x_{21}^4 x_{23}^1 x_{15} x_{22}^1 x_{10} x_{24}^2 x_{13}$	
12 IV	19 <sup>h</sup> 30 <sup>m</sup>	S	$x_{27} x_{29}^1 x_{30}^2 x_{28}^4 x_{26}^2 x_{24}^2 x_{35}$	
	1	E	$x_{38}^1 x_{42}^7 x_{40}^1 x_{50} x_{59}^2 x_{39}^1 x_{36}^1 x_{56}^6 x_{54}$	
		N	$x_2^1 x_{71}$	0.59±0.02
		W	$x_{21}^3 x_{15} x_{22} x_{23}^1 x_6^1 x_{10}^1 x_{13}^2 x_{12}^6 x_{11}$	
	20 <sup>h</sup>	S	$x_{38}^2 x_{29}^1 x_{27} x_{30}^2 x_{28}^4 x_{26} x_{36}^2 x_{35}^6 x_{32}^4 x_{33}$	
	2	E	$x_{42}^5 x_{40} x_{59}^2 x_{50}^1 x_{39}^2 x_{56}^4 x_{54}^3 x_{51}$	
		N	$x_2^1 x_{71}$	0.50±0.01
		W	$x_{21}^3 x_{15}^1 x_{22} x_{23} x_{24}^1 x_6 x_{10}^1 x_{13}^3 x_{12}$	
13 IV	20 <sup>h</sup>	S	$x_{29}^1 x_{27} x_{30}^1 x_{28}^4 x_{26}^1 x_{36}^1 x_{24} x_{35}^5 x_{32}^4 x_{33}$	
	3	E	$x_{38}^1 x_{42}^5 x_{40} x_{59}^2 x_{50}^1 x_{39}^1 x_{56}^4 x_{54}^3 x_{51}$	
		N	$x_2^2 x_{71}$	0.40±0.02
		W	$x_{21}^3 x_6 x_{15}^1 x_{22} x_{23}^1 x_{10} x_{13}^3 x_{12}$	
	21 <sup>h</sup>	S	$x_{38}^2 x_{29}^1 x_{27} x_{30}^3 x_{28}^2 x_{39}^2 x_{26} x_{36}^1 x_{35}^5 x_{32}^3 x_{33}$	
	2	E	$x_{42}^4 x_{40} x_{59}^3 x_{50}^2 x_{56}^2 x_{54}^1 x_{51}^2 x_{44}^4 x_{67}$	
		N	$x_{71}^1 x_2$	0.50±0.02
		W	$x_{21}^4 x_{23}^1 x_{15} x_{22}^1 x_{10} x_{24}^2 x_{13}$	
21 IV	19 <sup>h</sup> 30 <sup>m</sup>	S	$x_{38}^1 x_{29}^2 x_{27} x_{30}^2 x_{28}^4 x_{26} x_{36}^1 x_{35}^3 x_{32}^3 x_{33}$	
	3	E	$x_{42}^4 x_{59}^1 x_{40}^3 x_{39} x_{50}^1 x_{56}^3 x_{54}^2 x_{51}$	
		N	$x_2^1 x_{71}$	0.30±0.02
		W	$x_{21}^1 x_6^1 x_{15}^1 x_{22}^1 x_{10} x_{23} x_{24}^1 x_{13}^1 x_{12}$	
	20 <sup>h</sup>	S	$x_{38}^2 x_{29}^1 x_{27} x_{30}^2 x_{28}^3 x_{39}^1 x_{36}^1 x_{26} x_{35}^4 x_{32}^3 x_{33}$	
	1	E	$x_{42}^5 x_{40} x_{59}^3 x_{50}^2 x_{56}^2 x_{54}^1 x_{51}^2 x_{44}^3 x_{67}$	
		N	$x_2^2 x_{71}$	0.40±0.02
		W	$x_{21}^3 x_{15}^1 x_{22} x_{23} x_{24}^1 x_{10}^1 x_{13}^4 x_{12}$	
	19 <sup>h</sup> 30 <sup>m</sup>	S	$x_{38}^1 x_{29}^2 x_{27} x_{30}^2 x_{28}^2 x_{39}^2 x_{35} x_{36}^1 x_{26}^2 x_{32}^3 x_{33}$	
	2	E	$x_{42}^4 x_{40} x_{59}^3 x_{50}^2 x_{56}^1 x_{54}^1 x_{51}^1 x_{44}^3 x_{67}$	
		N	$x_{71}^1 x_2$	0.35±0.01
		W	$x_{21}^4 x_{15} x_{22} x_{23}^1 x_{10} x_{24}^2 x_{13}$	

1	2	3	4	5
22 IV	19 <sup>h</sup> 30 <sup>m</sup>	S	$x_{38}^2 x_{29}^1 x_{27}^3 x_{30}^2 x_{28}^4 x_{26}^1 x_{35}^3 x_{36}^4 x_{32}^4 x_{33}$	0.35±0.02
		E	$x_{42}^5 x_{40}^3 x_{59}^3 x_{39}^3 x_{50}^2 x_{56}^2 x_{54}^3 x_{51}$	
	N	$x_{21}^1 x_{71}$		
	W	$x_{21}^2 x_6 x_{15}^1 x_{22}^1 x_{23}^2 x_{24}^1 x_{10} x_{13}^2 x_{12}$		
21 <sup>h</sup> 30 <sup>m</sup>	2	S	$x_{38}^x x_{42}^1 x_{29}^2 x_{27}^3 x_{30}^4 x_{40}^2 x_{28}^2 x_{39}^1 x_{36}^1 x_{35}^1 x_{26}^1 x_{32}$ $1 x_{43}^2 x_{33}$	0.31±0.01
		E	$x_{59}^3 x_{57}^3 x_{71}^1 x_{50}^1 x_{56}^6 x_{69}^1 x_{44}^x x_{51}^x x_{54}^3 x_{67}^2 x_{48}$	
	N	$x_{27}^x x_{10}$		
	W	$x_{21}^4 x_{23}^1 x_{22}^2 x_{24}$		
24 IV	19 <sup>h</sup> 30 <sup>m</sup>	S	$x_{38}^x x_{42}^1 x_{29}^2 x_{27}^3 x_{30}^1 x_{40}^1 x_{28}^2 x_{39}^x x_{50}^1 x_{35}^1 x_{36}^1 x_{32}$ $1 x_{51}^2 x_{33}$	0.20±0.02
		E	$x_{59}^3 x_{71}^2 x_{56}^2 x_{54}^3 x_{67}$	
	N	$x_{25}^x x_{10}^1 x_{13}^1 x_{12}$		
	W	$x_{21}^1 x_{15}^1 x_{22}^2 x_{26}^1 x_{23}^x x_{24}$		
20 <sup>h</sup> 30 <sup>m</sup>	2	S	$x_{38}^x x_{42}^1 x_{29}^2 x_{30}^1 x_{40}^3 x_{39}^x x_{50}^1 x_{35}^x x_{36}^x x_{56}^1 x_{44}^x x_{51}^x x_{54}$ $1 x_{32}^3 x_{33}$	0.25±0.02
		E	$x_{59}^3 x_{71}^6 x_{67}$	
	N	$x_{25}^x x_{15}^1 x_{10}^1 x_{13}$		
	W	$x_{27}^2 x_{28}^3 x_{21}^1 x_{26}^2 x_{22}^x x_{23}^1 x_{24}$		
27 IV	19 <sup>h</sup> 30 <sup>m</sup>	S	$x_{29}^2 x_{27}^3 x_{30}^2 x_{28}^4 x_{26}^3 x_{36}^1 x_{24}^x x_{35}^4 x_{32}^3 x_{33}$	0.31±0.03
		E	$x_{38}^x x_{42}^5 x_{40}^3 x_{59}^3 x_{39}^3 x_{50}^2 x_{56}^2 x_{54}^3 x_{51}$	
	N	$x_{21}^1 x_{71}$		
	W	$x_{21}^1 x_6 x_{15}^1 x_{22}^2 x_{23}^1 x_{10} x_{13}^2 x_{12}$		
22 <sup>h</sup>	2	S	$x_{38}^x x_{42}^2 x_{29}^1 x_{27}^3 x_{30}^4 x_{40}^3 x_{28}^1 x_{39}^1 x_{44}^1 x_{35}^x x_{36}^2 x_{45}$ $2 x_{32}^x x_{48}^2 x_{41}^1 x_{33}$	0.38±0.01
		E	$x_{59}^3 x_{57}^1 x_{71}^1 x_{50}^x x_{69}^1 x_{51}^x x_{54}^x x_{56}^3 x_{67}^3 x_{70}^1 x_{58}$	
	N	$x_{27}^x x_{10}$		
	W	$x_{26}^3 x_{21}$		
28 IV	20 <sup>h</sup>	S	$x_{38}^1 x_{29}^2 x_{27}^3 x_{30}^2 x_{28}^2 x_{39}^1 x_{35}^1 x_{26}^x x_{36}^1 x_{32}^4 x_{33}$	0.25±0.02
		E	$x_{42}^3 x_{59}^1 x_{40}^3 x_{50}^1 x_{56}^2 x_{44}^x x_{51}^x x_{54}^3 x_{67}$	
	N	$x_{27}^x x_{15}^1 x_{10}^2 x_{13}$		
	W	$x_{21}^4 x_{22}^x x_{23}^x x_{24}$		

1	2	3	4	5
29. IV	19 <sup>h</sup>	S	$x_{38}^1 x_{29}^2 x_{27}^2 x_{30}^2 x_{28}^4 x_{26}^2 x_{35}^2 x_{36}^3 x_{32}^4 x_{33}$	
	1	E	$x_{42}^4 x_{59}^1 x_{40}^3 x_{39}^2 x_{50}^1 x_{56}^2 x_{54}^2 x_{51}$	0.28±0.02
		N	$x_{21}^1 x_{71}$	
		W	$x_{21}^1 x_6^1 x_{15}^1 x_{22}^2 x_{23}^2 x_{24}^1 x_{10}^1 x_{13}^2 x_{12}$	
1 V	19 <sup>h30m</sup>	S	$x_{38}^1 x_{29}^2 x_{27}^2 x_{30}^2 x_{28}^2 x_{39}^1 x_{35}^2 x_{36}^1 x_{26}^1 x_{32}^3 x_{33}$	
	3	E	$x_{42}^3 x_{59}^1 x_{40}^3 x_{50}^1 x_{56}^2 x_{44}^2 x_{51}^1 x_{54}^3 x_{67}$	0.23±0.02
		N	$x_2^1 x_{71}$	
		W	$x_{21}^2 x_{15}^1 x_{22}^1 x_{10}^2 x_{23}^2 x_{24}^1 x_{13}$	
	20 <sup>h</sup>	S	$x_{38}^1 x_{29}^2 x_{27}^2 x_{30}^2 x_{28}^2 x_{39}^2 x_{26}^2 x_{35}^2 x_{36}^2 x_{32}^3 x_{33}$	
	1	E	$x_{42}^3 x_{59}^1 x_{40}^3 x_{50}^1 x_{56}^1 x_{54}^1 x_{44}^2 x_{51}^3 x_{67}$	0.28±0.02
		N	$x_{71}^1 x_2$	
		W	$x_{21}^3 x_{15}^1 x_{10}^2 x_{22}^2 x_{23}^2 x_{24}^2 x_{13}$	
	20 <sup>h30m</sup>	S	$x_{59}^4 x_{42}^1 x_{29}^2 x_{27}^2 x_{30}^2 x_{40}^2 x_{28}^2 x_{39}^1 x_{35}^2 x_{36}^2 x_{26}^2 x_{32}^3 x_{33}$	
	2	E	$x_{59}^4 x_{57}^1 x_{50}^1 x_{44}^2 x_{51}^2 x_{56}^2 x_{69}^1 x_{54}^2 x_{43}^2 x_{67}$	0.24±0.02
		N	$x_2^2 x_{71}^6 x_{10}$	
		W	$x_{21}^4 x_{15}^2 x_{23}^1 x_{22}^2 x_{24}$	
2 V	20 <sup>h</sup>	S	$x_{38}^1 x_{29}^2 x_{27}^2 x_{30}^2 x_{28}^2 x_{39}^1 x_{35}^2 x_{36}^1 x_{26}^2 x_{32}^3 x_{33}$	
	1	E	$x_{42}^2 x_{59}^1 x_{40}^4 x_{50}^1 x_{56}^1 x_{44}^2 x_{51}^2 x_{54}^2 x_{67}$	0.19±0.01
		N	$x_2^1 x_{71}$	
		W	$x_{21}^3 x_{15}^2 x_{22}^1 x_{10}^2 x_{23}^2 x_{24}^1 x_{13}$	
	20 <sup>h30m</sup>	S	$x_{38}^1 x_{42}^1 x_{29}^2 x_{27}^2 x_{30}^2 x_{40}^2 x_{28}^1 x_{39}^2 x_{32}^2 x_{35}^2 x_{36}^1 x_{26}^2 x_{33}$	
	2	E	$x_{59}^4 x_{69}^1 x_{44}^2 x_{50}^1 x_{51}^2 x_{54}^2 x_{56}^1 x_{43}^1 x_{67}$	0.16±0.02
		N	$x_2^1 x_{71}^6 x_{10}$	
		W	$x_{21}^3 x_{15}^1 x_{22}^2 x_{23}^2 x_{24}^1 x_{13}$	
	23 <sup>h</sup>	S	$x_{38}^1 x_{42}^1 x_{29}^2 x_{57}^2 x_{40}^1 x_{30}^2 x_{39}^2 x_{44}^2 x_{50}^1 x_{43}^2 x_{51}^2 x_{53}^2 x_{54}^2 x_{56}^1 x_{35}$	
			$x_{36}^2 x_{48}^1 x_{41}$	
	2	E	$x_{59}^2 x_{69}^1 x_{71}^2 x_{70}^2 x_{58}^2 x_{67}^2 x_{68}^1 x_{65}$	0.16±0.02
		N	$x_2^8 x_{10}$	
		W	$x_{27}^3 x_{28}^5 x_{26}$	
	2 <sup>h</sup>	S	$x_{42}^2 x_{57}^1 x_{59}^1 x_{69}^1 x_{40}^3 x_{50}^1 x_{44}^2 x_{51}^2 x_{53}^2 x_{54}^2 x_{55}^2 x_{56}^2 x_{68}^1 x_{48}$	
			$x_{58}^2 x_{67}^1 x_{43}^1 x_{65}$	
	1	E	$x_2^1 x_1^4 x_{70}^2 x_{71}^1 x_6^2 x_{73}^3 x_{76}^2 x_{75}$	0.19±0.02
		N	$x_{10}$	
		W	$x_{38}^4 x_{27}^2 x_{30}^3 x_{39}^4 x_{36}$	



1	2	3	4	5
3 V	20 <sup>h</sup>	S	$x_{38}^1 x_{29}^{2x} x_{27} x_{30}^{2x} x_{28}^1 x_{39}^1 x_{35}^1 x_{32} x_{36}^1 x_{26}^{2x} x_{33}$	0.14±0.02
		E	$x_{42}^{2x} x_{59}^1 x_{40}^{4x} x_{50}^1 x_{44} x_{51} x_{54} x_{56}^{2x} x_{67}$	
		N	$x_{21}^1 x_{71}$	
		W	$x_{21}^{2x} x_{15}^1 x_{10} x_{22} x_{23} x_{24}^1 x_{13}$	
	20 <sup>h</sup> 30 <sup>m</sup>	S	$x_{38} x_{42}^1 x_{29}^{2x} x_{27} x_{30} x_{40}^{2x} x_{28}^1 x_{39}^{2x} x_{35} x_{36}^1 x_{26} x_{32}^{3x} x_{33}$	0.19±0.01
		E	$x_{59}^{3x} x_{57}^1 x_{69}^1 x_{50}^1 x_{44} x_{51} x_{54} x_{56}^{2x} x_{67}$	
		N	$x_2 x_{71}^{6x} x_{10}$	
		W	$x_{21}^{3x} x_{15}^1 x_{22} x_{23} x_{24}$	
	21 <sup>h</sup>	S	$x_{38} x_{42}^1 x_{29}^{2x} x_{27} x_{30} x_{40}^{2x} x_{28}^1 x_{39}^1 x_{44} x_{35} x_{36} x_{43}^{3x} x_{33} x_{41}$	0.16±0.02
		E	$x_{59}^1 x_{57}^1 x_{69}^1 x_{71}^{2x} x_{50} x_{51} x_{56}^1 x_{54}^{2x} x_{48} x_{67}$	
		N	$x_2 x_{71} x_{10}$	
		W	$x_{21}^1 x_{26}^{3x} x_{23}$	
4 V	20 <sup>h</sup> 30 <sup>m</sup>	S	$x_{38} x_{42}^1 x_{29}^{2x} x_{27} x_{30} x_{40}^{2x} x_{28}^1 x_{39}^{2x} x_{35} x_{36}^1 x_{26} x_{32}^1 x_{43}^{2x} x_{33}$	0.21±0.01
		E	$x_{59}^{3x} x_{57} x_{71}^{2x} x_{50} x_{69}^1 x_{44} x_{51} x_{54} x_{56}^{3x} x_{67}^1 x_{48}$	
		N	$x_2 x_{71} x_{10}$	
		W	$x_{21}^{4x} x_{22} x_{23}^1 x_{24}$	
	21 <sup>h</sup> 30 <sup>m</sup>	S	$x_{38} x_{42}^1 x_{29}^{2x} x_{27} x_{30} x_{40}^{2x} x_{28}^1 x_{39}^1 x_{44}^1 x_{35} x_{36}^1 x_{43}^1 x_{32}$ $1 x_{48}^1 x_{41}^1 x_{33}$	0.25±0.02
		E	$x_{59}^1 x_{57}^{2x} x_{69} x_{71}^{2x} x_{50} x_{56}^1 x_{51} x_{54}^{2x} x_{67}^1 x_{70}^1 x_{58}$	
		N	$x_2^{8x} x_{10}$	
		W	$x_{26}^1 x_{21}$	
5 V	20 <sup>h</sup>	S	$x_{38} x_{42}^1 x_{29}^{2x} x_{27} x_{30} x_{40}^{2x} x_{38}^1 x_{39}^{2x} x_{32} x_{35} x_{36}^1 x_{26}^{3x} x_{33}$	0.17±0.02
		E	$x_{59}^{5x} x_{50}^1 x_{44} x_{51} x_{54} x_{56}^{3x} x_{67}$	
		N	$x_2 x_{71}$	
		W	$x_{21}^{3x} x_{15} x_{22}^1 x_{10} x_{23} x_{24}^1 x_{13}$	
	20 <sup>h</sup> 30 <sup>m</sup>	S	$x_{38} x_{42}^1 x_{29}^{2x} x_{27} x_{30} x_{40}^{2x} x_{28}^1 x_{39}^{2x} x_{35} x_{36}^1 x_{32}^1 x_{26} x_{43}^{3x} x_{33}$	0.20±0.01
		E	$x_{59}^{3x} x_{57}^1 x_{71}^1 x_{50} x_{69}^1 x_{44} x_{51} x_{54} x_{56}^{3x} x_{67}^{2x} x_{48}$	
		N	$x_2 x_{61} x_{10}$	
		W	$x_{21}^{3x} x_{23}^1 x_{22}^1 x_{24}$	
6 V	21 <sup>h</sup>	S	$x_{38} x_{42}^1 x_{29}^{2x} x_{27} x_{30} x_{40}^{2x} x_{28}^1 x_{39}^1 x_{44}^1 x_{35} x_{36}^1 x_{32} x_{43}$ $2 x_{41}^1 x_{33}$	0.23±0.02
		E	$x_{59}^1 x_{57}^{2x} x_{69} x_{71}^{2x} x_{50} x_{56}^1 x_{51} x_{54}^{2x} x_{48} x_{67}^{2x} x_{58}$	
		N	$x_2 x_{71} x_{10}$	
		W	$x_{21}^1 x_{26}^{3x} x_{23}$	

1	2	3	4	5
6 V	22 <sup>h</sup>	S	$x_{38}x_{42}^1x_{29}^2x_{40}^1x_{30}^1x_{28}^1x_{39}x_{44}^1x_{43}x_{50}x_{51}^1x_{35}x_{36}x_{54}$ $1x_{48}x_{53}^1x_{32}x_{41}^3x_{33}$	
	2	E	$x_{57}^1x_{59}^1x_{69}^2x_{71}^2x_{56}x_{70}^2x_{58}x_{67}^4x_{65}$	0.18±0.01
		N	$x_2^8x_{10}$	
		W	$x_{26}$	
7 V	20 <sup>h</sup>	S	$x_{38}x_{42}^1x_{29}^2x_{27}x_{30}x_{40}^2x_{28}^1x_{39}^1x_{44}^1x_{35}x_{36}^1x_{32}x_{43}^3x_{41}$ $1x_{33}$	
	2	E	$x_{59}^1x_{57}^2x_{69}x_{71}^2x_{50}x_{56}^1x_{51}x_{54}^2x_{67}^1x_{48}^2x_{58}$	0.22±0.01
		N	$x_{27}x_{10}$	
		W	$x_{21}^1x_{26}^4x_{23}$	
	21 <sup>h</sup>	S	$x_{38}x_{42}^1x_{29}^2x_{40}^1x_{30}^1x_{28}^1x_{39}x_{44}^1x_{43}x_{50}x_{51}^1x_{35}x_{36}x_{54}$ $1x_{48}x_{53}^1x_{32}x_{41}^3x_{33}$	
	1	E	$x_{57}^1x_{59}^1x_{69}^2x_{71}^2x_{56}x_{70}^2x_{58}x_{67}^4x_{65}$	0.18±0.01
		N	$x_2^8x_{10}$	
		W	$x_{26}$	
10 V	21 <sup>h</sup>	S	$x_{38}x_{42}^2x_{29}^1x_{27}x_{40}^1x_{30}^2x_{28}^1x_{39}^2x_{36}x_{44}^1x_{35}^2x_{43}^1x_{48}$ $1x_{32}^2x_{41}^1x_{33}$	
	2	E	$x_{59}^2x_{57}^2x_{50}x_{71}^1x_{51}x_{56}x_{69}^1x_{54}^3x_{67}^3x_{70}^1x_{58}$	0.42±0.01
		N	$x_2^8x_{10}$	
		W	$x_{26}^4x_{21}$	
12 V	20 <sup>h</sup> 30 <sup>m</sup>	S	$x_{38}x_{42}^1x_{29}^2x_{27}x_{30}x_{40}^2x_{28}^2x_{39}^1x_{36}x_{44}^1x_{35}^2x_{32}x_{43}$ $3x_{33}^1x_{41}$	
	2	E	$x_{59}^3x_{57}^1x_{71}^1x_{50}x_{69}^1x_{51}x_{56}^1x_{54}^2x_{67}^2x_{48}$	0.31±0.01
		N	$x_{27}x_{10}$	
		W	$x_{26}^1x_{21}^4x_{23}$	
	21 <sup>h</sup> 30 <sup>m</sup>	S	$x_{38}x_{42}^2x_{29}^1x_{27}x_{40}^1x_{30}^2x_{28}x_{39}^1x_{44}^1x_{36}^1x_{35}x_{43}^3x_{32}$ $x_{41}^2x_{33}$	
	1	E	$x_{59}^1x_{57}^2x_{69}x_{71}^2x_{50}x_{56}^1x_{51}x_{54}^2x_{48}x_{67}x_{70}^1x_{53}x_{58}^4x_{65}$	0.28±0.01
		N	$x_2^8x_{10}$	
		W	$x_{26}^2x_{21}$	
13 V	21 <sup>h</sup>	S	$x_{38}x_{42}^2x_{29}^1x_{27}x_{40}^1x_{30}^2x_{28}^1x_{39}x_{50}^2x_{36}x_{44}x_{51}^1x_{35}$ $3x_{43}^1x_{48}^3x_{32}x_{41}^2x_{33}$	
	2	E	$x_{59}^3x_{57}^1x_{71}x_{56}^1x_{54}x_{69}^3x_{67}^4x_{70}^1x_{58}^2x_{53}^5x_{65}$	0.52±0.01
		N	$x_2^9x_{10}$	
		W	$x_{26}^6x_{21}$	

1	2	3	4	5
13 V	22 <sup>h</sup>	S	$x_{38}x_{42}^3x_{29}x_{40}^1x_{30}^3x_{39}x_{50}x_{56}^1x_{44}x_{51}x_{54}^1x_{36}^2x_{35}x_{43}$ $x_{48}^2x_{53}^2x_{41}^6x_{33}$	
	1	E	$x_{59}^1x_{57}^2x_{69}^1x_{71}^4x_{67}x_{70}^2x_{58}^4x_{65}^3x_{68}$	$k = 0.52 \pm 0.02$
		N	$x_2^1x_{10}$	
		W	$x_{27}^4x_{28}^6x_{26}$	
16 V	21 <sup>h</sup>	S	$x_{38}x_{42}^2x_{29}^1x_{27}x_{40}^1x_{30}^2x_{28}^1x_{39}x_{50}^1x_{44}x_{51}^1x_{35}x_{36}$ $1x_{43}^1x_{48}^2x_{32}^1x_{41}^x5^2x_{33}$	
	2	E	$x_{59}^2x_{57}^2x_{69}x_{71}^2x_{54}x_{56}^2x_{67}^2x_{70}^1x_{58}^5x_{65}$	$k = 0.46 \pm 0.01$
		N	$x_{28}x_{10}$	
		W	$x_{26}^4x_{21}$	
	22 <sup>h</sup>	S	$x_{38}x_{42}^2x_{29}x_{57}^1x_{40}^1x_{30}^2x_{39}^1x_{44}x_{50}x_{51}x_{56}^1x_{54}^1x_{35}x_{36}$ $x_{43}^1x_{48}x_{53}^2x_{41}$	
	1	E	$x_{59}^2x_{69}^1x_{71}^3x_{70}^1x_{67}^1x_{58}^3x_{65}^1x_{68}$	$k = 0.30 \pm 0.02$
		N	$x_2^1x_{10}$	
		W	$x_{27}^3x_{28}^6x_{26}$	
17 V	23 <sup>h</sup>	S	$x_{28}x_{42}x_{57}^1x_{59}^2x_{40}^3x_{39}x_{44}x_{50}x_{55}^1x_{43}x_{51}x_{53}x_{54}x_{56}$ $1x_{36}x_{48}x_{58}^1x_{35}x_{41}x_{47}$	
	3	E	$x_{69}^2x_{71}^1x_{70}^3x_{67}x_{68}^2x_{65}^3x_{75}$	$k = 0.15 \pm 0.01$
		N	$x_{10}$	
		W	$x_{29}^1x_{27}^1x_{30}^2x_{28}^6x_{26}$	
	1 <sup>h</sup>	S	$x_{42}x_{57}^1x_{59}^1x_{69}^1x_{40}^3x_{44}x_{50}x_{55}^1x_{51}x_{53}x_{54}x_{56}x_{58}x_{68}$ $1x_{43}x_{48}x_{67}^1x_{65}$	
	3	E	$x_2^1x_1x_4x_6x_{70}x_{71}^1x_{73}^2x_{76}^3x_{75}$	$k = 0.15 \pm 0.01$
		N	$x_{10}$	
		W	$x_{38}^4x_{27}x_{30}^3x_{39}^3x_{36}$	
20 V	20 <sup>h</sup>	S	$x_{38}x_{42}^1x_{29}^2x_{27}x_{30}x_{40}^2x_{28}^2x_{39}^1x_{36}x_{44}^1x_{35}^2x_{32}x_{43}$ $3x_{33}x_{41}$	
	1	E	$x_{59}^3x_{57}^1x_{71}^1x_{50}x_{69}^1x_{51}x_{54}x_{56}^3x_{67}^1x_{48}^3x_{58}$	$0.31 \pm 0.02$
		N	$x_{27}x_{10}$	
		W	$x_{26}^1x_{21}^5x_{23}$	
	20 <sup>h</sup> 30 <sup>m</sup>	S	$x_{38}x_{42}^2x_{29}^1x_{27}x_{40}^1x_{30}^2x_{28}^1x_{39}x_{50}^1x_{44}x_{51}^1x_{35}x_{36}$ $1x_{43}^2x_{48}^1x_{32}^1x_{41}^2x_{33}$	
	2	E	$x_{59}^2x_{57}^2x_{69}x_{71}^2x_{54}x_{56}^3x_{67}^1x_{70}^2x_{53}x_{58}^5x_{65}$	$0.35 \pm 0.01$
		N	$x_{28}x_{10}$	
		W	$x_{26}^3x_{21}$	

1	2	3	4	5
21 v	20 <sup>h</sup>	S	$x_{38}x_{42}^2x_{29}^1x_{27}x_{30}x_{40}^3x_{28}^1x_{39}^2x_{35}x_{36}x_{44}^3x_{43}^1x_{32}^2x_{33}x_{41}$	
	.2	E	$x_{59}^3x_{57}x_{71}^1x_{50}^1x_{56}x_{69}^1x_{51}x_{54}^3x_{67}^2x_{48}^3x_{58}$	
		N	$x_{27}x_{10}$	
		W	$x_{26}^2x_{21}^5x_{23}$	$k = 0.37 \pm 0.01$
22 v	20 <sup>h</sup>	S	$x_{38}x_{42}^2x_{29}^1x_{27}x_{30}x_{40}^3x_{28}^1x_{39}^1x_{44}^1x_{35}x_{36}^2x_{43}^1x_{32}^2x_{41}^1x_{33}$	
	.2	E	$x_{59}^2x_{57}^2x_{71}^1x_{50}x_{69}^1x_{51}x_{54}x_{56}^3x_{67}^1x_{48}^3x_{58}$	
		N	$x_{27}x_{10}$	
		W	$x_{26}^1x_{21}^6x_{23}$	$k = 0.34 \pm 0.02$
25 v	20 <sup>h</sup> 30 <sup>m</sup>	S	$x_{38}x_{42}^2x_{29}^1x_{27}x_{40}^1x_{30}^2x_{28}^1x_{39}x_{50}^1x_{44}x_{51}^1x_{35}x_{36}^1x_{43}$ $2x_{48}^1x_{32}^1x_{41}x_{53}^2x_{33}$	
	.2	E	$x_{59}^2x_{57}x_{69}x_{71}^2x_{54}x_{56}^3x_{67}^1x_{70}^1x_{58}^5x_{65}$	
		N	$x_{28}x_{10}$	$0.36 \pm 0.02$
		W	$x_{26}^4x_{21}$	
	21 <sup>h</sup>	S	$x_{38}x_{42}^2x_{29}^1x_{40}^1x_{30}^2x_{28}x_{39}^1x_{44}x_{50}x_{51}^1x_{54}^1x_{35}x_{36}x_{43}^1x_{48}$ $1x_{53}^1x_{41}^2x_{32}^2x_{33}$	
	.1	E	$x_{57}x_{59}^2x_{69}^1x_{71}^2x_{56}^2x_{70}^1x_{67}^1x_{58}^3x_{65}$	
		N	$x_{29}x_{10}$	$0.31 \pm 0.02$
		W	$x_{27}^8x_{26}$	
27 v	21 <sup>h</sup>	S	$x_{38}x_{42}^2x_{29}^1x_{40}^1x_{30}^3x_{28}x_{39}x_{44}x_{50}x_{51}^1x_{54}^1x_{36}^1x_{35}x_{43}x_{48}$ $1x_{53}^2x_{41}^5x_{33}$	
	.2	E	$x_{57}x_{59}^2x_{69}^1x_{71}^2x_{56}^2x_{70}^1x_{67}^1x_{58}^3x_{65}$	$0.36 \pm 0.01$
		N	$x_{210}x_{10}$	
		W	$x_{27}^9x_{26}$	
	22 <sup>h</sup>	S	$x_{38}x_{42}^1x_{57}x_{59}^2x_{40}^3x_{50}^1x_{39}x_{44}x_{51}x_{54}x_{56}^2x_{36}x_{43}x_{48}x_{53}$ $x_{58}^1x_{35}^1x_{41}^1x_{47}$	
	.1	E	$x_{69}^2x_{71}x_{70}^3x_{67}^2x_{68}^1x_{65}$	
		N	$x_{210}x_{10}$	$0.31 \pm 0.02$
		W	$x_{27}x_{29}^1x_{30}^3x_{28}^7x_{26}$	
6 VI	21 <sup>h</sup>	S	$x_{38}x_{42}^2x_{57}x_{59}^1x_{40}^4x_{39}x_{44}x_{50}x_{51}x_{56}^1x_{54}^1x_{36}x_{43}^1x_{35}$ $x_{48}x_{53}x_{58}^3x_{41}x_{35}^2x_{47}$	
	.2	E	$x_{69}^1x_{71}^3x_{70}^1x_{67}^4x_{65}x_{68}$	
		N	$x_{210}x_{10}$	$0.36 \pm 0.02$
		W	$x_{27}x_{29}^1x_{30}^3x_{28}^7x_{26}$	

1	2	3	4	5
6 VI	22 <sup>h</sup>	S	$x_{38}x_{42}^1x_{57}x_{59}^2x_{40}^3x_{50}^1x_{39}x_{44}x_{51}x_{54}x_{56}^1x_{43}x_{53}x_{58}$ $1x_{36}x_{48}x_{55}^2x_{47}^1x_{41}$	
	3	E	$x_{69}^2x_{71}^1x_2$ $x_{70}^3x_{67}^1x_{68}^2x_{65}^4x_{75}$	0.27±0.02
		M	$x_{10}$	
		W	$x_{29}^1x_{27}x_{30}^4x_{28}^3x_{35}^4x_{26}$	
	1 <sup>h</sup>	S	$x_{57}x_{59}x_{69}^3x_{70}x_{71}^1x_{73}^2x_{50}x_{51}x_{56}x_{68}^1x_{54}x_{58}x_{67}^1x_{55}^1x_{48}$ $x_{53}x_{65}^2x_{72}^3x_{66}$	
	3	E	$x_1x_2^1x_4^1x_6^3x_{76}^3x_{75}^1x_{10}^1x_{74}^3x_8$	0.26±0.01
		N	0	
		W	$x_{42}^1x_{38}^3x_{40}^1x_{27}^1x_{30}^2x_{44}^2x_{39}$	
8 VI	20 <sup>h</sup>	S	$x_{38}x_{42}^2x_{29}^1x_{40}^1x_{30}^2x_{28}^1x_{39}x_{50}^1x_{44}x_{51}x_{54}^1x_{36}$ $1x_{35}$ $x_{43}^1x_{48}^2x_{53}^1x_{41}^2x_{32}^2x_{33}$	
	3	E	$x_{59}^1x_{57}^2x_{69}^1x_{71}^1x_{56}^3x_{67}^1x_{70}^1x_{58}^4x_{65}$	0.40±0.02
		N	$x_2^10x_{10}$	
		W	$x_{27}^5x_{26}$	
	21 <sup>h</sup>	S	$x_{38}x_{42}^2x_{57}x_{59}^1x_{40}^4x_{39}x_{50}x_{51}x_{56}^1x_{44}x_{54}^2x_{36}^1x_{43}x_{48}x_{58}$ $1x_{35}x_{53}^3x_{41}x_{55}^2x_{47}$	
	2	E	$x_{69}^2x_{71}^3x_{70}^1x_{67}^4x_{65}^1x_{68}$	0.48±0.01
		N	$x_2^12x_{10}$	
		W	$x_{27}x_{29}x_{30}^4x_{28}^8x_{26}$	
	21 <sup>h</sup> 30 <sup>m</sup>	S	$x_{38}x_{42}^1x_{59}^1x_{57}^3x_{50}^1x_{39}x_{44}x_{51}x_{54}x_{56}^3x_{36}x_{43}x_{48}x_{53}x_{58}$ $2x_{35}x_{55}^2x_{41}^1x_{47}$	
	1	E	$x_{69}^2x_{71}^2x_{70}^2x_{67}^3x_{65}x_{68}^8x_{75}$	0.40±0.01
		N	$x_{10}$	
		W	$x_{27}x_{29}x_{30}^5x_{28}^8x_{26}$	
9 VI	22 <sup>h</sup>	S	$x_{38}x_{42}^1x_{57}x_{59}^2x_{40}^3x_{50}^1x_{44}x_{51}x_{54}x_{56}^1x_{39}^2x_{48}x_{53}x_{58}$ $1x_{43}^1x_{55}x_{65}^4x_{41}x_{47}$	
	2	E	$x_{69}^2x_{71}^1x_2$ $x_{70}^3x_{67}^2x_{68}^7x_{75}$	0.45±0.02
		N	$x_{10}$	
		W	$x_{27}^1x_{30}^1x_{29}^5x_{28}x_{36}^4x_{35}$	
10 VI	21 <sup>h</sup> 30 <sup>m</sup>	S	$x_{38}x_{42}^1x_{57}x_{59}^2x_{40}^3x_{50}^1x_{39}x_{44}x_{51}x_{54}x_{56}^1x_{43}x_{53}^1x_{36}$ $x_{48}x_{55}x_{58}^3x_{41}x_{47}$	
	2	E	$x_{69}^1x_{71}x_2$ $1x_{70}^2x_{67}^2x_{68}^1x_{65}^4x_{75}$	0.28±0.01
		N	$x_{10}$	
		W	$x_{29}^1x_{27}x_{30}^4x_{28}^3x_{35}^4x_{26}$	

1	2	3	4	5
10 VI	22 <sup>h</sup>	S	$x_{42}x_{57}^1x_{59}^2x_{40}^3x_{44}x_{50}^1x_{39}x_{51}x_{53}x_{54}x_{55}x_{56}^1x_{43}x_{48}x_{58}$ $2x_{47}x_{65}^1x_{41}$	
	1	E	$x_{69}^2x_2x_{71}^1x_{70}^3x_{67}x_{68}^4x_{75}$	0.21±0.02
		N	$x_{10}$	
		W	$x_{29}^1x_{27}x_{30}^4x_{28}^1x_{36}^2x_{35}$	
11 VI	21 <sup>h</sup>	S	$x_{38}x_{42}^1x_{57}x_{59}^2x_{40}^3x_{39}x_{50}^1x_{44}x_{51}x_{54}x_{56}^1x_{43}x_{53}^1x_{36}x_{48}$ $x_{55}x_{58}^1x_{35}^1x_{41}x_{47}$	
	2	E	$x_{69}^2x_{71}^1x_{70}^3x_{67}^1x_{68}^1x_{65}$	0.25±0.01
		N	$x_2^1x_{10}$	
		W	$x_{29}^1x_{27}^1x_{30}^3x_{28}^6x_{26}$	
	21 <sup>h</sup> 30 <sup>m</sup>	S	$x_{38}x_{42}x_{57}^1x_{59}^2x_{40}^3x_{39}x_{44}x_{50}^1x_{43}x_{51}x_{53}x_{54}x_{55}x_{56}^1x_{48}$ $x_{58}^1x_{36}x_{47}^1x_{41}$	
	1	E	$x_{69}^1x_2^1x_{71}^1x_{70}^3x_{67}x_{68}^2x_{65}^3x_{75}$	0.18±0.01
		N	$x_{10}$	
		W	$x_{29}^1x_{27}^1x_{30}^3x_{28}^2x_{35}^4x_{26}$	
13 VI	21 <sup>h</sup>	S	$x_{38}x_{42}^1x_{57}x_{59}^2x_{40}^3x_{50}^1x_{39}x_{44}x_{51}x_{54}x_{56}^1x_{43}x_{53}^1x_{36}$ $x_{48}x_{55}x_{58}^1x_{35}^1x_{41}x_{47}$	
	2	E	$x_{69}^1x_{71}^2x_{70}^3x_{67}^1x_{68}^1x_{65}$	0.25±0.01
		N	$x_{29}x_{10}$	
		W	$x_{27}x_{29}^1x_{30}^3x_{28}^6x_{26}$	
	24 <sup>h</sup>	S	$x_{57}^1x_{59}x_{69}^3x_{70}x_{71}^3x_{44}x_{50}x_{51}x_{54}x_{55}x_{56}x_{68}^1x_{53}x_{58}x_{67}$ $1x_{48}^1x_{65}^1x_{72}^2x_{66}$	
	3	E	$x_1x_2^1x_4x_6^2x_{73}^1x_{76}^4x_{75}^1x_{10}^1x_{74}$	0.20±0.01
		N	-	
		W	$x_{38}x_{42}^4x_{27}x_{40}^1x_{30}^3x_{39}^3x_{43}$	
14 VI	23 <sup>h</sup>	S	$x_{42}x_{57}^1x_{69}^1x_{40}^3x_{44}x_{50}x_{55}^1x_{51}x_{53}x_{54}x_{56}x_{68}^1x_{43}x_{48}$ $x_{67}x_{58}^2x_{65}$	
	3	E	$x_1x_2^1x_4x_6x_{70}x_{71}^1x_{73}^3x_{76}^2x_{75}$	0.16±0.01
		N	$x_{10}$	
		W	$x_{38}^4x_{27}x_{30}^3x_{39}^3x_{36}$	

1	2	3	4	5
15 VI	22 <sup>h</sup>	S	$x_{42}x_{57}^1x_{59}^2x_{40}^3x_{44}^4x_{50}^5x_{55}^1x_{39}^x43^x51^x53^x54^x56^1x_{48}$ $x_{58}^1x_{47}^1x_{41}^x65$	
	3	E	$x_{69}^1x_2^1x_{70}x_{71}^3x_{73}^1x_{67}x_{68}^3x_{75}$	0.16±0.02
		N	$x_{10}$	
		W	$x_{38}^3x_{27}x_{29}^1x_{30}^3x_{28}^2x_{36}^1x_{35}$	
16 VI	1 <sup>h</sup>	S	$x_{57}x_{59}x_{69}^3x_{70}x_{71}x_{73}^3x_{56}x_{68}^1x_{54}x_{58}x_{67}^1x_{65}^1x_{53}x_{72}$ $1x_{74}^2x_{66}$	
	2	E	$x_1 x_4 1x_2x_6^3x_{76}^4x_{75}^1x_{10}^2x_8$	0.20±0.02
		N	-	
		W	$x_{42}^1x_{38}^3x_{40}^1x_{27}x_{30}^2x_{50}x_{51}^1x_{44}^2x_{39}x_{48}$	
	21 <sup>h</sup>	S	$x_{38}x_{42}^1x_{57}x_{59}^2x_{40}^3x_{39}x_{44}x_{50}^1x_{43}x_{51}x_{53}x_{54}x_{56}^1x_{48}x_{55}x_{58}$ $1x_{35}x_{36}^1x_{41}x_{47}$	
	2	E	$x_{69}^2x_{71}^1x_{70}^3x_{67}^1x_{68}^1x_{65}^4x_{75}$	0.20±0.01
		N	$x_{10}$	
		W	$x_{29}^1x_{27}^1x_{30}^3x_{28}^6x_{26}$	
	22 <sup>h</sup>	S	$x_{42}x_{57}^1x_{59}^2x_{40}^3x_{44}x_{50}x_{55}^1x_{39}x_{51}x_{53}x_{54}x_{56}^1x_{43}x_{48}x_{58}$ $1x_{47}^1x_{65}^1x_{41}$	
	1	E	$x_{69}^1x_2^1x_{70}x_{71}^4x_{67}x_{68}x_{73}^3x_{75}$	0.18±0.01
		N	$x_{10}$	
		W	$x_{38}^3x_{27}x_{29}^1x_{30}^4x_{28}^1x_{36}^2x_{35}$	
17 VI	21 <sup>h</sup> 30 <sup>m</sup>	S	$x_{38}x_{42}^1x_{57}x_{59}^2x_{40}^3x_{50}^1x_{39}x_{44}x_{51}x_{54}x_{56}^2x_{43}x_{48}x_{53}x_{55}$ $x_{58}^2x_{65}^2x_{41}x_{47}$	
	2	E	$x_{69}^1x_{71}^1x_2^1x_{70}^2x_{67}^2x_{68}^5x_{75}$	0.32±0.02
		N	$x_{10}$	
		W	$x_{27}x_{29}x_{30}^5x_{28}^1x_{36}^2x_{35}^6x_{26}$	
19 VI	21 <sup>h</sup> 30 <sup>m</sup>	S	$x_{42}^1x_{57}x_{59}^2x_{40}^3x_{50}^1x_{39}x_{44}x_{51}x_{54}x_{56}^1x_{43}x_{53}x_{55}x_{58}$ $1x_{48}^1x_{65}^1x_{47}^1x_{41}$	
	2	E	$x_{69}^2x_2^1x_{71}^1x_{70}^3x_{67}x_{68}^5x_{75}$	0.25±0.02
		N	$x_{10}$	
		W	$x_{27}x_{29}x_{30}^4x_{28}^2x_{36}^2x_{35}$	

1	2	3	4	5
20 VI	20 <sup>h</sup> 30 <sup>m</sup>	S	x <sub>38</sub> x <sub>42</sub> <sup>1</sup> x <sub>57</sub> x <sub>59</sub> <sup>2</sup> x <sub>40</sub> <sup>3</sup> x <sub>39</sub> x <sub>50</sub> <sup>1</sup> x <sub>44</sub> x <sub>51</sub> x <sub>54</sub> x <sub>56</sub> <sup>1</sup> x <sub>43</sub> x <sub>53</sub> <sup>1</sup> x <sub>36</sub> x <sub>48</sub> x <sub>55</sub> x <sub>58</sub> <sup>1</sup> x <sub>35</sub> <sup>1</sup> x <sub>41</sub> x <sub>47</sub>	
	2	E	x <sub>69</sub> <sup>1</sup> x <sub>71</sub> <sup>2</sup> x <sub>70</sub> <sup>3</sup> x <sub>67</sub> <sup>1</sup> x <sub>68</sub> <sup>1</sup> x <sub>65</sub>	0.24±0.01
		N	x <sub>2</sub> <sup>9</sup> x <sub>10</sub>	
		W	x <sub>29</sub> <sup>1</sup> x <sub>27</sub> <sup>1</sup> x <sub>30</sub> <sup>3</sup> x <sub>28</sub> <sup>6</sup> x <sub>26</sub>	
	1 <sup>h</sup>	S	x <sub>57</sub> x <sub>59</sub> x <sub>69</sub> <sup>3</sup> x <sub>70</sub> x <sub>71</sub> x <sub>73</sub> <sup>3</sup> x <sub>56</sub> x <sub>68</sub> <sup>1</sup> x <sub>58</sub> x <sub>67</sub> <sup>1</sup> x <sub>65</sub> x <sub>75</sub> <sup>1</sup> x <sub>72</sub> x <sub>74</sub> <sup>3</sup> x <sub>66</sub>	
	3	E	x <sub>1</sub> x <sub>4</sub> x <sub>6</sub> <sup>1</sup> x <sub>2</sub> <sup>1</sup> x <sub>7</sub> <sup>2</sup> x <sub>76</sub> <sup>5</sup> x <sub>5</sub> x <sub>10</sub> <sup>1</sup> x <sub>8</sub> <sup>1</sup> x <sub>13</sub>	
		N	-	0.17±0.01
		W	x <sub>42</sub> <sup>1</sup> x <sub>38</sub> <sup>4</sup> x <sub>30</sub> <sup>4</sup> x <sub>40</sub> <sup>2</sup> x <sub>50</sub> x <sub>51</sub> <sup>1</sup> x <sub>54</sub> <sup>1</sup> x <sub>44</sub> <sup>2</sup> x <sub>48</sub>	
22 VI	24 <sup>h</sup>	S	x <sub>1</sub> <sup>1</sup> x <sub>69</sub> <sup>3</sup> x <sub>70</sub> x <sub>71</sub> x <sub>73</sub> <sup>1</sup> x <sub>76</sub> <sup>3</sup> x <sub>67</sub> x <sub>68</sub> <sup>1</sup> x <sub>75</sub> <sup>1</sup> x <sub>72</sub> x <sub>74</sub> <sup>1</sup> x <sub>65</sub>	
	2	E	x <sub>41</sub> x <sub>6</sub> <sup>1</sup> x <sub>7</sub> <sup>6</sup> x <sub>5</sub> <sup>2</sup> x <sub>10</sub> <sup>1</sup> x <sub>8</sub> <sup>1</sup> x <sub>13</sub> <sup>1</sup> x <sub>12</sub> <sup>2</sup> x <sub>11</sub> <sup>1</sup> x <sub>15</sub>	0.30±0.02
		N	x <sub>27</sub> <sup>1</sup> x <sub>30</sub>	
		W	x <sub>42</sub> <sup>1</sup> x <sub>59</sub> <sup>1</sup> x <sub>38</sub> x <sub>57</sub> <sup>4</sup> x <sub>50</sub> <sup>1</sup> x <sub>56</sub> <sup>2</sup> x <sub>54</sub> <sup>1</sup> x <sub>51</sub> <sup>1</sup> x <sub>58</sub>	
23 VI	23 <sup>h</sup>	S	x <sub>57</sub> x <sub>59</sub> <sup>1</sup> x <sub>69</sub> <sup>2</sup> x <sub>70</sub> <sup>3</sup> x <sub>44</sub> x <sub>50</sub> x <sub>51</sub> x <sub>54</sub> x <sub>56</sub> x <sub>68</sub> <sup>1</sup> x <sub>58</sub> x <sub>67</sub> <sup>1</sup> x <sub>53</sub> x <sub>55</sub> <sup>1</sup> x <sub>43</sub> x <sub>65</sub> <sup>2</sup> x <sub>43</sub>	
	2	E	x <sub>2</sub> <sup>1</sup> x <sub>1</sub> <sup>1</sup> x <sub>71</sub> <sup>1</sup> x <sub>4</sub> <sup>1</sup> x <sub>6</sub> <sup>1</sup> x <sub>73</sub> <sup>3</sup> x <sub>76</sub> <sup>1</sup> x <sub>75</sub> <sup>3</sup> x <sub>10</sub> <sup>1</sup> x <sub>72</sub> <sup>1</sup> x <sub>74</sub>	0.28±0.01
		N	-	
		W	x <sub>36</sub> x <sub>42</sub> <sup>4</sup> x <sub>40</sub> <sup>1</sup> x <sub>27</sub> x <sub>30</sub> <sup>4</sup> x <sub>39</sub> <sup>5</sup> x <sub>36</sub>	
24 VI	23 <sup>h</sup>	S	x <sub>57</sub> x <sub>59</sub> <sup>1</sup> x <sub>69</sub> <sup>2</sup> x <sub>70</sub> x <sub>71</sub> <sup>3</sup> x <sub>50</sub> x <sub>51</sub> x <sub>56</sub> <sup>1</sup> x <sub>54</sub> x <sub>67</sub> x <sub>68</sub> <sup>1</sup> x <sub>44</sub> x <sub>50</sub> <sup>1</sup> x <sub>65</sub> 1x <sub>48</sub> x <sub>53</sub> x <sub>55</sub> <sup>3</sup> x <sub>72</sub> <sup>3</sup> x <sub>66</sub>	
	2	E	x <sub>2</sub> <sup>1</sup> x <sub>1</sub> <sup>1</sup> x <sub>4</sub> <sup>1</sup> x <sub>6</sub> <sup>1</sup> x <sub>73</sub> <sup>2</sup> x <sub>76</sub> <sup>2</sup> x <sub>75</sub> <sup>3</sup> x <sub>10</sub> <sup>1</sup> x <sub>74</sub> <sup>4</sup> x <sub>8</sub>	0.35±0.02
		N	-	
		W	x <sub>42</sub> <sup>1</sup> x <sub>38</sub> <sup>4</sup> x <sub>40</sub> <sup>1</sup> x <sub>27</sub> x <sub>30</sub> <sup>4</sup> x <sub>39</sub>	
25 VI	22 <sup>h</sup>	S	x <sub>42</sub> <sup>1</sup> x <sub>57</sub> x <sub>59</sub> <sup>3</sup> x <sub>40</sub> <sup>2</sup> x <sub>50</sub> <sup>1</sup> x <sub>44</sub> x <sub>51</sub> x <sub>54</sub> x <sub>56</sub> <sup>1</sup> x <sub>39</sub> x <sub>58</sub> x <sub>67</sub> x <sub>68</sub> <sup>1</sup> x <sub>48</sub> x <sub>53</sub> x <sub>55</sub> <sup>1</sup> x <sub>43</sub> x <sub>65</sub> <sup>3</sup> x <sub>47</sub>	
	2	E	x <sub>69</sub> <sup>2</sup> x <sub>2</sub> <sup>1</sup> x <sub>71</sub> <sup>1</sup> x <sub>70</sub> <sup>4</sup> x <sub>73</sub> <sup>3</sup> x <sub>75</sub>	0.32±0.02
		N	x <sub>10</sub>	
		W	x <sub>38</sub> <sup>4</sup> x <sub>27</sub> <sup>1</sup> x <sub>30</sub> <sup>3</sup> x <sub>29</sub> <sup>3</sup> x <sub>36</sub> <sup>1</sup> x <sub>28</sub>	
26 VI	21 <sup>h</sup>	S	x <sub>38</sub> x <sub>42</sub> <sup>1</sup> x <sub>57</sub> x <sub>59</sub> <sup>2</sup> x <sub>40</sub> <sup>3</sup> x <sub>50</sub> <sup>1</sup> x <sub>39</sub> x <sub>44</sub> x <sub>51</sub> x <sub>54</sub> x <sub>56</sub> <sup>1</sup> x <sub>53</sub> <sup>1</sup> x <sub>43</sub> x <sub>48</sub> x <sub>55</sub> x <sub>58</sub> <sup>2</sup> x <sub>65</sub> <sup>1</sup> x <sub>47</sub> <sup>1</sup> x <sub>41</sub>	
	2	E	x <sub>69</sub> <sup>2</sup> x <sub>71</sub> <sup>1</sup> x <sub>2</sub> <sup>1</sup> x <sub>70</sub> <sup>3</sup> x <sub>67</sub> <sup>1</sup> x <sub>68</sub> <sup>6</sup> x <sub>75</sub>	0.30±0.01
		N	x <sub>10</sub>	
		W	x <sub>27</sub> x <sub>29</sub> x <sub>30</sub> <sup>4</sup> x <sub>28</sub> <sup>2</sup> x <sub>36</sub> <sup>2</sup> x <sub>35</sub> <sup>5</sup> x <sub>26</sub>	



1	2	3	4	5
26 VI	22 <sup>h</sup>	S	$x_{42}x_{57}x_{59}x_{40}x_{50}x_{44}x_{51}x_{54}x_{55}x_{56}x_{58}x_{67}x_{68}$ $x_{43}x_{48}x_{65}x_{47}$	
	1	E	$x_{69}x_2x_{70}x_{71}x_{73}x_{75}$	0.23±0.01
		N	$x_{10}$	
		W	$x_{38}x_{27}x_{30}x_{29}x_{39}x_{28}x_{36}$	
27 VI	21 <sup>h</sup>	S	$x_{42}x_{57}x_{59}x_{40}x_{50}x_{39}x_{44}x_{51}x_{54}x_{56}x_{53}x_{55}x_{58}x_{43}$ $x_{48}x_{65}x_{47}x_{41}$	
	2	E	$x_{69}x_2x_{71}x_{70}x_{67}x_{68}x_{73}x_{75}$	0.28±0.02
		N	$x_{10}$	
		W	$x_{38}x_{27}x_{30}x_{29}x_{28}x_{36}x_{35}$	
	21 <sup>h</sup> 30 <sup>m</sup>	S	$x_{42}x_{57}x_{59}x_{40}x_{50}x_{44}x_{51}x_{54}x_{55}x_{56}x_{53}x_{58}x_{67}x_{68}$ $x_{43}x_{48}x_{65}x_{47}x_{41}$	
	1	E	$x_{69}x_2x_{70}x_{71}x_{73}x_{75}$	0.24±0.01
		N	$x_{10}$	
		W	$x_{38}x_{27}x_{30}x_{29}x_{39}x_{28}x_{36}$	
	22 <sup>h</sup>	S	$x_{42}x_{57}x_{59}x_{69}x_{40}x_{50}x_{44}x_{51}x_{53}x_{54}x_{55}x_{56}x_{68}x_{48}$ $x_{58}x_{67}x_{43}x_{65}$	
	3	E	$x_2x_1x_{70}x_{71}x_4x_6x_{73}x_{76}x_{75}$	0.20±0.02
		N	$x_{10}$	
		W	$x_{38}x_{27}x_{30}x_{39}x_{43}x_{36}$	
28 VI	22 <sup>h</sup>	S	$x_{42}x_{57}x_{59}x_{69}x_{40}x_{50}x_{44}x_{51}x_{54}x_{56}x_{58}x_{67}x_{68}x_{48}$ $x_{53}x_{55}x_{65}x_{43}$	
	3	E	$x_2x_{70}x_{71}x_{73}x_4x_6x_{75}x_{76}$	0.31±0.01
		N	$x_{10}$	
		W	$x_{38}x_{27}x_{30}x_{39}x_{43}x_{36}$	
30 VI	21 <sup>h</sup>	S	$x_{42}x_{57}x_{59}x_{40}x_{50}x_{39}x_{44}x_{51}x_{54}x_{56}x_{48}x_{53}x_{58}x_{43}$ $x_{55}x_{65}x_{47}x_{41}$	
	2	E	$x_{69}x_{71}x_2x_{70}x_{67}x_{68}x_{73}x_{75}$	0.35±0.02
		N	$x_{10}$	
		W	$x_{38}x_{27}x_{30}x_{29}x_{28}x_{36}x_{35}$	
	22 <sup>h</sup>	S	$x_{42}x_{57}x_{59}x_{69}x_{40}x_{50}x_{44}x_{51}x_{54}x_{56}x_{53}x_{55}x_{58}x_{67}$ $x_{68}x_{48}x_{43}x_{65}$	
	3	E	$x_2x_{70}x_{71}x_1x_4x_6x_{73}x_{76}x_{75}$	0.28±0.01
		N	$x_{10}$	
		W	$x_{38}x_{27}x_{30}x_{39}x_{43}x_{36}$	

1	2	3	4	5
1 VII	22 <sup>h</sup>	S	$x_{42}x_{57}^1x_{59}^1x_{69}^1x_{40}^3x_{50}^1x_{44}x_{51}x_{53}x_{54}x_{55}x_{56}x_{68}^1x_{48}$ $x_{58}x_{67}^1x_{43}^1x_{65}$	
	3	E	$x_2^1x_1x_70x_71^1x_4$ $x_6^1x_73^2x_76^2x_75$	0.20±0.01
		N	$x_{10}$	
		W	$x_{38}^4x_{27}x_{30}^3x_{39}^4x_{36}$	
2 VII	22 <sup>h</sup>	S	$x_{42}x_{57}^1x_{59}^1x_{69}^1x_{40}^3x_{44}x_{50}x_{55}^1x_{51}x_{53}x_{54}x_{56}x_{68}^1x_{43}$ $x_{48}x_{58}x_{67}^1x_{65}$	
	3	E	$x_2^1x_1x_4x_6x_70x_71^1x_73^3x_76^2x_75$	0.16±0.01
		N	$x_{10}$	
		W	$x_{38}^4x_{27}x_{30}^3x_{39}^3x_{36}$	
3 VII	22 <sup>h</sup> 30 <sup>m</sup>	S	$x_{57}^1x_{59}^9x_{69}^3x_{70}^2x_{50}x_{55}^1x_{44}x_{51}x_{53}x_{54}x_{56}x_{68}^1x_{48}x_{58}x_{67}$ $^1x_{43}x_{65}$	
	3	E	$x_1x_2^1x_4x_6^1x_71^1x_73^2x_76^3x_75^1x_{10}^1x_{72}x_{74}$	0.17±0.01
		N	-	
		W	$x_{38}x_{42}^3x_{40}^1x_{27}x_{30}^4x_{39}^4x_{36}$	
9 VII	22 <sup>h</sup>	S	$x_{57}x_{59}^1x_{69}^2x_{70}^3x_{44}x_{50}x_{51}x_{54}x_{56}x_{68}^1x_{53}x_{55}x_{58}x_{67}$ $^1x_{48}^1x_{65}^1x_{43}$	
	2	E	$x_2^1x_1x_4x_71^1x_6^1x_73^2x_76^2x_75^2x_{10}^2x_{72}x_{74}$	0.25±0.02
		N	-	
		W	$x_{38}x_{42}^4x_{40}^1x_{27}x_{30}^3x_{39}^5x_{36}$	
	22 <sup>h</sup> 30 <sup>m</sup>	S	$x_{57}^1x_{59}x_{69}^3x_{70}x_{71}^3x_{44}x_{50}x_{51}x_{54}x_{56}x_{68}^1x_{55}x_{58}x_{67}^1x_{48}$ $x_{53}^1x_{65}^2x_{72}^2x_{66}$	
	1	E	$x_1x_2^1x_4^1x_6^1x_73^2x_76^3x_75^1x_{10}^1x_{74}^3x_8$	0.22±0.01
		N	-	
		W	$x_{38}x_{42}^4x_{40}^1x_{27}x_{30}^4x_{39}$	
	23 <sup>h</sup>	S	$x_{57}^1x_{59}x_{69}^3x_{70}x_{71}x_{73}^3x_{50}x_{51}x_{54}x_{55}x_{56}x_{68}^1x_{53}x_{58}x_{67}$ $^1x_{48}x_{65}^1x_{72}x_{74}^2x_{66}$	
	3	E	$x_1x_4^1x_2x_6^3x_76^4x_75^1x_{10}^2x_8$	0.16±0.01
		N	-	
		W	$x_{38}x_{42}^4x_{27}x_{40}^1x_{30}^2x_{44}^2x_{39}$	

1	2	3	4	5
11 VII	22 <sup>h</sup>	S	$x_{57}x_{59}^1x_{69}^3x_{70}^2x_{50}x_{56}^1x_{51}x_{54}x_{67}x_{68}^1x_{44}x_{58}^1x_{65}^2x_{48}$ $x_{53}^1x_{55}^3x_{43}$	
	2	E	$x_2x_{71}^3x_1^1x_{73}^1x_4^1x_4^2x_7^5x_{76}^4x_{10}^3x_{72}x_{74}$	0.48±0.02
		N	-	
		W	$x_{42}^1x_{38}^4x_{40}^1x_{27}x_{30}^5x_{39}^8x_{36}$	
	22 <sup>h</sup> 30 <sup>m</sup>	S	$x_{57}x_{59}^1x_{69}^2x_{70}x_{71}^3x_{50}x_{51}x_{56}^1x_{54}x_{67}x_{68}^1x_{58}^1x_{65}^1x_{48}$ $x_{53}x_{55}^3x_{72}^3x_{66}$	
	3	E	$x_1x_2^1x_4^1x_6^3x_{76}^2x_{75}^3x_{10}^1x_{74}^4x_8$	0.34±0.01
		N	-	
		W	$x_{42}^1x_{38}^4x_{40}^1x_{27}x_{30}^4x_{39}$	
13 VII	22 <sup>h</sup>	S	$x_{57}x_{59}^1x_{69}^2x_{70}x_{71}^3x_{50}x_{56}^1x_{51}x_{54}x_{67}x_{68}^1x_{44}x_{58}^1x_{65}$ $^1x_{48}x_{53}x_{59}^8x_{66}$	
	2	E	$x_2^1x_1^1x_4^1x_6x_{73}^3x_{76}^1x_{75}^3x_{10}^2x_{72}x_{74}$	0.40±0.02
		N	-	
		W	$x_{42}^1x_{38}^4x_{40}^1x_{27}x_{30}^4x_{39}^6x_{43}$	
16 VII	21 <sup>h</sup>	S	$x_{42}^1x_{57}x_{59}^1x_{69}^3x_{40}^3x_{50}x_{51}x_{56}^1x_{44}x_{54}x_{67}^1x_{58}x_{68}^2x_{48}$ $x_{53}x_{55}x_{65}^2x_{43}$	
	2	E	$x_{71}^1x_2x_{70}^4x_1^1x_{73}^2x_4^1x_6x_{75}^2x_{76}$	0.45±0.02
		N	$x_{10}$	
		W	$x_{38}^5x_{27}x_{30}^3x_{39}^6x_{36}$	
	21 <sup>h</sup> 30 <sup>m</sup>	S	$x_{57}x_{59}^1x_{69}^2x_{70}^3x_{50}x_{51}x_{56}^1x_{44}x_{54}x_{67}x_{68}^1x_{58}^1x_{65}^1x_{48}$ $x_{53}x_{55}^4x_{43}$	
	1	E	$x_2x_{71}^2x_1^1x_4x_{73}^1x_6^2x_{76}^1x_{79}^3x_{72}^3x_{10}x_{74}$	0.40±0.01
		N	-	
		W	$x_{42}^1x_{38}^3x_{40}^2x_{27}x_{30}^4x_{39}^7x_{36}$	
	22 <sup>h</sup>	S	$x_{57}x_{59}^1x_{69}^2x_{70}x_{71}^3x_{50}x_{51}x_{56}x_{68}^1x_{44}x_{54}x_{53}x_{67}^2x_{53}$ $x_{55}x_{65}^1x_{48}^2x_{72}^4x_{66}$	
	3	E	$x_1x_2^1x_4^1x_6^1x_{73}^2x_{76}^2x_{75}^2x_{10}^2x_{74}^4x_3$	0.32±0.01
		N	$x_6$	
		W	$x_{42}^1x_{38}^3x_{40}^2x_{27}x_{30}^4x_{39}$	
17 VII	23 <sup>h</sup>	S	$x_{57}x_{59}x_{69}^3x_{70}x_{71}x_{73}^3x_{56}x_{68}^1x_{54}x_{58}x_{67}^2x_{65}x_{72}x_{74}^3x_{66}$	
	3	E	$x_1x_4^1x_2x_6^3x_{76}^4x_{75}^1x_{10}^2x_8$	0.20±0.01
		N	-	
		W	$x_{42}^1x_{38}^4x_{27}x_{40}^1x_{30}^1x_{50}x_{51}^1x_{44}^2x_{53}^1x_{39}x_{48}$	

1	2	3	4	5
22 VII	22 <sup>h</sup>	S	$x_1 x_6 x_9 x_{37} x_{70} x_{71} x_{73} x_{76} x_{67} x_{68} x_{75} x_{72} x_{74} x_{65}$	
	3	E	$x_4 x_6 x_7 x_5 x_{10} x_8 x_{13} x_{12} x_{11} x_{15}$	0.30±0.01
		N	$x_{27} x_{38}$	
		W	$x_{42} x_{59} x_{38} x_{57} x_{45} x_{50} x_{56} x_{54} x_{51} x_{58}$	
25 VII	21 <sup>h</sup>	S	$x_{57} x_{59} x_{69} x_{70} x_{71} x_{50} x_{51} x_{56} x_{68} x_{44} x_{54} x_{58} x_{67} x_{48}$ $x_{53} x_{55} x_{65} x_{72} x_{66}$	
	2	E	$x_2 x_1 x_4 x_6 x_{73} x_{76} x_{75} x_{10} x_{74}$	0.31±0.01
		N	-	
		W	$x_{42} x_{38} x_{40} x_{27} x_{30} x_{39} x_{43}$	
	21 <sup>h</sup> 30 <sup>m</sup>	S	$x_{57} x_{59} x_{69} x_{70} x_{71} x_{73} x_{50} x_{51} x_{56} x_{68} x_{54} x_{58} x_{67} x_{55}$ $x_{48} x_{53} x_{65} x_{72} x_{66}$	
	3	E	$x_1 x_2 x_4 x_6 x_{76} x_{75} x_{10} x_{74} x_8$	0.24±0.01
		N	-	
		W	$x_{42} x_{38} x_{40} x_{27} x_{30} x_{44} x_{39}$	
27 VII	20 <sup>h</sup>	S	$x_{42} x_{57} x_{59} x_{40} x_{50} x_{44} x_{51} x_{54} x_{56} x_{58} x_{67} x_{68} x_{48} x_{53}$ $x_{55} x_{43} x_{65} x_{47}$	
	2	E	$x_{69} x_2 x_{71} x_{70} x_1 x_3 x_4 x_{75}$	0.31±0.02
		N	$x_{10}$	
		W	$x_{38} x_{42} x_{27} x_{30} x_{39} x_{29} x_{36} x_{28}$	
	21 <sup>h</sup>	S	$x_{57} x_{59} x_{69} x_{70} x_{71} x_{44} x_{50} x_{51} x_{54} x_{56} x_{68} x_{53} x_{55} x_{58} x_{67}$ $x_{48} x_{65} x_{66}$	
	3	E	$x_1 x_2 x_4 x_6 x_{73} x_{76} x_{75} x_{10} x_{72} x_{74}$	0.24±0.02
		N	-	
		W	$x_{38} x_{42} x_{40} x_{27} x_{30} x_{39} x_{43} x_{36}$	
28 VII	20 <sup>h</sup> 30 <sup>m</sup>	S	$x_{57} x_{59} x_{69} x_{70} x_{50} x_{44} x_{51} x_{54} x_{55} x_{56} x_{68} x_{53} x_{58} x_{67}$ $x_{48} x_{43} x_{65}$	
	1	E	$x_2 x_1 x_4 x_{71} x_6 x_{73} x_{76} x_{75} x_{72} x_{74}$	0.22±0.01
		N	$x_{10}$	
		W	$x_{38} x_{42} x_{27} x_{40} x_{30} x_{39} x_{43} x_{36}$	
	21 <sup>h</sup>	S	$x_{57} x_{59} x_{69} x_{70} x_{71} x_{44} x_{50} x_{51} x_{54} x_{55} x_{56} x_{68} x_{53} x_{58} x_{67}$ $x_{48} x_{65} x_{66}$	
	2	E	$x_1 x_2 x_4 x_6 x_{73} x_{76} x_{75} x_{10} x_{72} x_{74}$	0.19±0.02
		N	-	
		W	$x_{38} x_{42} x_{27} x_{40} x_{30} x_{39} x_{43}$	

1	2	3	4	5
29 VII	20 <sup>h</sup> 30 <sup>m</sup>	S	$x_{57}x_{59}x_{69}x_{70}x_{71}x_{34}x_{50}x_{51}x_{54}x_{56}x_{68}x_{53}x_{55}x_{58}$ $x_{67}x_{48}x_{65}x_{66}$	
	2	E	$x_1x_2x_4x_6x_7x_7^3x_7^2x_7^3x_7^5x_{10}x_{72}x_{74}$	0.24±0.02
		N	-	
		W	$x_{38}x_{42}x_{40}x_{27}x_{30}x_{39}x_{43}x_{36}$	
	21 <sup>h</sup> 30 <sup>m</sup>	S	$x_{57}x_{59}x_{69}x_{70}x_{71}x_{73}x_{50}x_{51}x_{56}x_{68}x_{54}x_{58}x_{67}x_{53}x_{55}$ $x_{65}x_{72}x_{74}x_{66}^2$	
	1	E	$x_1x_2x_4x_6x_7x_7^3x_{10}x_8^3$	0.20±0.01
		N	-	
		W	$x_{42}x_{38}x_{40}x_{27}x_{30}x_{44}x_{39}x_{48}$	
30 VII	21 <sup>h</sup>	S	$x_{57}x_{59}x_{69}x_{70}x_{71}x_{50}x_{51}x_{54}x_{56}x_{68}x_{44}x_{55}x_{58}x_{67}x_{53}$ $x_{53}x_{48}x_{72}x_{66}^3$	
	2	E	$x_1x_2x_4x_6x_7x_7^2x_7^3x_7^5x_{10}x_{74}x_8^3$	0.25±0.01
		N	-	
		W	$x_{42}x_{38}x_{40}x_{27}x_{30}x_{43}x_{39}$	
	21 <sup>h</sup> 30 <sup>m</sup>	S	$x_{57}x_{59}x_{69}x_{70}x_{71}x_{73}x_{50}x_{51}x_{56}x_{68}x_{54}x_{55}x_{58}x_{67}x_{53}$ $x_{48}x_{65}x_{72}x_{74}x_{66}^2$	
	1	E	$x_1x_2x_4x_6x_7x_7^3x_{10}x_8^2$	0.21±0.01
		N	-	
		W	$x_{42}x_{38}x_{40}x_{27}x_{30}x_{44}x_{39}$	
31 VII	20 <sup>h</sup> 30 <sup>m</sup>	S	$x_{57}x_{59}x_{69}x_{70}x_{71}x_{50}x_{51}x_{54}x_{56}x_{44}x_{58}x_{67}x_{68}x_{53}x_{55}x_{48}$ $x_{65}x_{43}^2$	
	1	E	$x_2x_1x_{71}x_4x_6x_7x_7^3x_7^2x_7^5x_{10}x_{72}x_{74}$	0.31±0.01
		N	-	
		W	$x_{42}x_{38}x_{40}x_{27}x_{30}x_{39}x_{36}^6$	
	21 <sup>h</sup>	S	$x_{57}x_{59}x_{69}x_{70}x_{71}x_{50}x_{51}x_{54}x_{56}x_{68}x_{44}x_{58}x_{67}x_{53}x_{55}$ $x_{48}x_{65}x_{72}x_{66}^3$	
	2	E	$x_1x_2x_4x_7x_7^2x_7^3x_7^5x_{10}x_{74}x_8$	0.25±0.02
		N	-	
		W	$x_{42}x_{38}x_{40}x_{27}x_{30}x_{43}x_{39}$	
2 VIII	22 <sup>h</sup>	S	$x_{57}x_{59}x_{69}x_{70}x_{71}x_{73}x_{56}x_{68}x_{58}x_{67}x_{75}x_{65}x_{72}x_{74}x_{66}^3$	
	3	E	$x_1x_4x_2x_6x_7x_7^3x_{10}x_8^2x_{13}^2$	0.21±0.01
		N	-	
		W	$x_{42}x_{38}x_{40}x_{27}x_{30}x_{50}x_{51}x_{54}x_{44}x_{39}x_{48}^2$	

1	2	3	4	5	
3 VIII	20 <sup>h</sup>	S	$x_{57}^1 x_{59}^1 x_{69}^2 x_{70}^2 x_{44} x_{50} x_{55}^1 x_{51} x_{53} x_{54} x_{56} x_{68}^1 x_{43} x_{48}$ $x_{58} x_{67}^1 x_{65}$	0.16±0.02	
	3	E	$x_2^1 x_1 x_4^1 x_6 x_{71}^1 x_{73}^2 x_{76}^3 x_{75}^2 x_{72}^1 x_{74}$		
		N	$x_{10}$		
			W	$x_{38} x_{42}^3 x_{40}^1 x_{27} x_{30}^3 x_{39}^4 x_{36}$	
	21 <sup>h</sup>	S	$x_{57}^1 x_{59} x_{69}^3 x_{70} x_{71} x_{73}^3 x_{50} x_{51} x_{54} x_{56} x_{68}^1 x_{53} x_{55} x_{58} x_{67}$ $1 x_{48} x_{65}^2 x_{72}^2 x_{66}$	0.20±0.02	
	1	E	$x_1 x_2 x_4^1 x_6^3 x_{76}^3 x_{75}^2 x_{10} x_{74}^3 x_8$		
		N	-		
			W	$x_{38} x_{42}^4 x_{40}^1 x_{27} x_{30}^2 x_{44}^2 x_{39}$	
	21 <sup>h</sup> 30 <sup>m</sup>	S	$x_{57} x_{59} x_{69}^3 x_{70} x_{71} x_{73}^3 x_{51} x_{56} x_{68}^1 x_{54} x_{58} x_{67}^2 x_{55} x_{65}$ $1 x_{53} x_{72} x_{74}^3 x_{66}$	0.25±0.02	
	2	E	$x_1 x_2 x_4^1 x_6^3 x_{76}^3 x_{75}^2 x_{10}^2 x_8$		
		N	-		
			W	$x_{42}^1 x_{38}^4 x_{27} x_{40}^1 x_{30}^3 x_{44}^2 x_{39} x_{48}$	
6 VIII	20 <sup>n</sup>	S	$x_{57} x_{59}^1 x_{69}^4 x_{50}^1 x_{44} x_{51} x_{54} x_{56} x_{68}^1 x_{53} x_{55} x_{58} x_{67}^1 x_{48}$ $1 x_{65}^1 x_{43}$	0.25±0.01	
	2	E	$x_2^1 x_1 x_{70} x_{71}^1 x_4 x_6^1 x_{73}^2 x_{76}^2 x_{75}^4 x_{72} x_{74}$		
		N	-		
			W	$x_{38} x_{42}^4 x_{40}^1 x_{27} x_{30}^3 x_{39}^5 x_{36}$	
	20 <sup>h</sup> 30 <sup>m</sup>	S	$x_{57}^1 x_{59} x_{69}^3 x_{70} x_{71}^3 x_{44} x_{50} x_{51} x_{54} x_{56} x_{68}^1 x_{53} x_{55} x_{58} x_{67}$ $1 x_{48}^1 x_{65}^1 x_{72}^3 x_{66}$	0.21±0.02	
	1	E	$x_1 x_2^1 x_4 x_6^2 x_{73}^1 x_{76}^4 x_{75}^1 x_{10}^1 x_{74}^3 x_8$		
		N	-		
			W	$x_{38} x_{42}^4 x_{40}^1 x_{27} x_{30}^4 x_{39}$	
	7 VIII	21 <sup>h</sup>	S	$x_{57} x_{59} x_{69}^3 x_{70} x_{71}^1 x_{73}^2 x_{50} x_{56} x_{68}^1 x_{51} x_{54} x_{67}^1 x_{58}^1 x_{65}$ $1 x_{48} x_{53} x_{55}^1 x_{72} x_{74}^4 x_{66}$	0.30±0.02
		2	E	$x_1^1 x_2 x_4^1 x_6^3 x_{76}^3 x_{75}^2 x_{10}^3 x_8$	
			N	-	
				W	$x_{42}^1 x_{38}^4 x_{40}^1 x_{27} x_{30}^3 x_{44}^2 x_{39}$
21 <sup>h</sup> 30 <sup>m</sup>		S	$x_{57} x_{59} x_{69}^3 x_{70} x_{71} x_{73}^3 x_{56} x_{68}^1 x_{54} x_{67}^1 x_{58}^1 x_{65}^1 x_{72} x_{74}^4 x_{66}$	0.27±0.02	
1		E	$x_1^1 x_2 x_4^1 x_6^3 x_{76}^3 x_{75}^2 x_{10}^2 x_8$		
		N	-		
			W	$x_{42}^1 x_{38}^4 x_{40}^1 x_{27} x_{30}^1 x_{50}^1 x_{51}^1 x_{44}^3 x_{39} x_{48} x_{53}$	

1	2	3	4	5		
8 VIII	20 <sup>h</sup>	S	$x_{57}x_{59}^1x_{69}^2x_{70}^3x_{50}x_{56}^1x_{51}x_{54}x_{67}x_{68}^1x_{44}x_{58}^1x_{65}$ $2x_{48}x_{53}x_{55}^4x_{43}$			
		2	E	$x_2x_{71}^2x_1^2x_4^2x_{73}x_6^2x_{76}^1x_{75}^3x_{10}^3x_{72}x_{74}$	0.45±0.02	
		N	-			
			W	$x_{42}^1x_{38}^4x_{40}^1x_{27}x_{30}^4x_{39}^9x_{36}$		
	20 <sup>h</sup> 30 <sup>m</sup>	S	$x_{57}x_{59}^1x_{69}^2x_{70}x_{71}^2x_{73}^1x_{50}x_{56}^1x_{51}x_{54}x_{67}x_{68}^1x_{58}^1x_{65}$ $2x_{48}x_{53}x_{55}^2x_{72}^5x_{66}$			
		1	E	$x_2^1x_1^1x_4^1x_6^2x_{76}^2x_{75}^3x_{10}^2x_{74}^4x_8$	0.40±0.01	
		N	-			
			W	$x_{42}^1x_{38}^4x_{40}^1x_{27}^1x_{30}^2x_{44}^2x_{39}$		
	21 <sup>h</sup>	S	$x_{57}x_{59}x_{69}^3x_{70}x_{71}^1x_{73}^2x_{50}x_{56}x_{68}^1x_{51}x_{54}x_{67}^1x_{58}^1x_{65}$ $2x_{72}^1x_{53}x_{55}^5x_{74}^4x_{66}$			
		3	E	$x_1^1x_2x_4^1x_6^3x_{76}^3x_{75}^2x_{10}^3x_8$	0.35±0.01	
		N	-			
			W	$x_{38}x_{42}^4x_{40}^2x_{27}x_{30}^3x_{44}^3x_{39}x_{48}$		
11 VIII	20 <sup>h</sup>	S	$x_{57}x_{59}^1x_{69}^2x_{70}x_{71}^3x_{50}x_{51}x_{56}^1x_{44}x_{54}x_{58}x_{67}x_{68}^1x_{55}$ $1x_{48}x_{53}x_{65}^7x_{66}$			
		2	E	$x_2^1x_1^1x_4^1x_6x_{73}^2x_{76}^2x_{75}^3x_{10}^1x_{72}^1x_{74}$	0.31±0.01	
		N	-			
			W	$x_{42}^1x_{38}^3x_{40}^1x_{27}x_{30}^4x_{39}^4x_{43}^3x_{36}$		
	20 <sup>h</sup> 30 <sup>m</sup>	S	$x_{57}x_{59}x_{69}^3x_{70}x_{71}^1x_{73}^2x_{50}x_{51}x_{56}x_{68}^1x_{54}x_{58}x_{67}^1x_{53}$ $x_{55}^1x_{48}x_{65}^1x_{72}^3x_{66}$			
		1	E	$x_1x_2x_4^1x_6^3x_{76}^4x_{75}^1x_{10}^1x_{74}^2x_8$	0.24±0.02	
		N	-			
			W	$x_{42}^1x_{38}^3x_{40}^1x_{27}x_{30}^3x_{44}^2x_{39}$		
	13 VIII	22 <sup>h</sup>	S	$x_{57}x_{59}x_{69}^3x_{70}x_{71}x_{73}^1x_{76}^2x_{68}^1x_{67}^1x_{58}x_{75}^1x_{65}x_{72}x_{74}$		
			2	E	$x_1x_4^1x_2x_6^1x_7^6x_5^1x_{10}^1x_8^1x_{13}$	
			N	$x_{<7}$	0.23±0.01	
			W	$x_{42}^1x_{38}^5x_{40}^1x_{30}x_{50}x_{56}^1x_{51}x_{54}^3x_{44}$		
14 VIII	22 <sup>h</sup>	S	$x_{59}x_{69}^3x_{70}x_{71}x_{73}^1x_{76}^2x_{68}^1x_{67}^1x_{58}x_{72}x_{75}^1x_{65}x_{74}$			
		2	E	$x_1x_4^1x_6^1x_2x_7^6x_5^1x_{10}^2x_8x_{13}^2x_{12}$		
		N	$x_{27}$	0.18±0.02		
		W	$x_{42}^1x_{38}x_{57}^5x_{30}x_{40}^1x_{50}x_{56}^1x_{51}x_{54}$			

1	2	3	4	5	
25 VIII	20 <sup>h</sup>	S	$x_{57}x_{59}x_{69}^3x_{70}x_{71}x_{73}^3x_{50}x_{51}x_{56}x_{68}^1x_{54}x_{58}x_{67}$ $2x_{53}x_{55}x_{65}^1x_{72}x_{74}^3x_{66}$	0.25±0.01	
	2	F	$x_1x_2x_4^1x_6^3x_{76}^3x_{75}^2x_{10}^3x_8$		
		N	-		
			W	$x_{42}^1x_{38}^4x_{27}x_{40}^1x_{30}^3x_{44}^2x_{39}x_{48}$	
	20 <sup>h</sup> 30 <sup>m</sup>	1	S	$x_{57}x_{59}x_{69}^3x_{70}x_{71}x_{73}^3x_{56}x_{68}^1x_{58}x_{67}^1x_{75}^1x_{65}x_{72}x_{74}^4x_{66}$ E $x_1x_4^1x_2x_6^2x_{71}x_{76}^5x_5^1x_{10}^2x_8^1x_{13}$	0.20±0.02
			W	$x_{42}^1x_{38}^4x_{40}^1x_{30}^1x_{50}^1x_{51}x_{54}x_{44}^3x_{48}$	
9 IX	20 <sup>h</sup>	S	$x_{57}x_{59}x_{69}^3x_{70}x_{71}x_{73}^1x_{76}^2x_{56}x_{68}^1x_{67}^1x_{58}x_{75}^1x_{65}$ $x_{72}x_{74}$	0.25±0.01	
	2	E	$x_1x_4^1x_2x_6^1x_{77}x_5x_{10}^2x_8^1x_{13}$		
		N	$x_{27}$		
			W	$x_{24}^2x_{34}^4x_{41}x_{30}x_{50}^1x_{51}x_{54}^4x_{44}$	
	21 <sup>h</sup>	1	S	$x_{69}^3x_{70}x_{71}x_{73}^1x_{76}^2x_{68}^1x_{67}^1x_{65}^1x_{75}x_{72}x_{74}$ E $x_1x_4^1x_6^1x_2x_{76}x_5^2x_{10}^1x_8^1x_{13}^1x_{12}$	0.22±0.02
			W	$x_{42}^1x_{59}^1x_{38}x_{57}^5x_{40}x_{50}x_{56}^1x_{54}^1x_{51}x_{58}$	
14 X	19 <sup>h</sup>	S	$x_1x_{69}^2x_{70}x_{71}x_{73}^1x_{76}^3x_{67}x_{68}^1x_{75}^2x_{65}x_{74}^1x_{72}$	0.42±0.02	
	2	E	$x_4^1x_2x_6^1x_{76}x_5^1x_{10}^1x_8^2x_{13}^1x_{12}^4x_{11}$		
		N	$x_{27}x_{30}$		
		W	$x_{42}^1x_{59}^2x_{38}x_{57}^4x_{50}x_{56}^2x_{54}^2x_{51}^1x_{58}$		
15 X	19 <sup>h</sup>	S	$x_1x_{69}^3x_{70}x_{71}x_{73}^1x_{76}^3x_{67}x_{68}^1x_{75}^2x_{65}x_{72}x_{74}$	0.35±0.01	
	2	E	$x_4x_6^1x_{77}x_5^1x_{10}^1x_8^1x_{13}^1x_{12}^2x_{15}^1x_{11}$		
		N	$x_{27}^1x_{30}$		
		W	$x_{42}^1x_{59}^2x_{38}x_{57}^4x_{50}x_{56}^2x_{54}^1x_{51}^2x_{58}$		
16 X	19 <sup>h</sup>	S	$x_1^2x_2x_{69}^2x_{70}x_{71}x_{73}^1x_{76}^3x_{67}x_{68}^1x_{75}^1x_{74}^1x_{65}x_{72}$	0.30±0.02	
	2	E	$x_4^1x_6x_{77}x_5^1x_{10}^1x_8x_{12}x_{13}^1x_{15}^1x_{11}$		
		N	$x_{27}^1x_{30}$		
		W	$x_{42}^1x_{59}^1x_{38}^1x_{57}^3x_{50}^1x_{56}^2x_{54}^2x_{51}^1x_{58}$		



1	2	3	4	5
17 X	17 <sup>h</sup> 30 <sup>m</sup>	S	$x_{59}x_{69}^1x_{57}^2x_{70}x_{71}x_{73}^2x_{76}^1x_{56}x_{68}^1x_{67}^1x_{75}^1x_{58}x_{65}^1x_{72}x_{74}$	0.32±0.01
		E	$x_1^1x_2^2x_4^3x_6^3x_7^6x_{10}^1x_5^8x_{13}^3$	
		N	$x_{27}$	
		W	$x_{42}^1x_{38}^5x_{40}x_{50}^1x_{30}^1x_{51}^4x_{44}$	
	19 <sup>h</sup> 10 <sup>m</sup>	S	$x_{69}^3x_{70}x_{71}x_{73}^1x_{76}^3x_{67}x_{68}^1x_{75}^2x_{65}x_{72}x_{74}$	0.40±0.02
		E	$x_1x_4^1x_2x_6^2x_7x_5x_{10}^1x_8^2x_{13}^3x_{12}$	
		N	$x_{27}^1x_{30}$	
		W	$x_{42}^1x_{59}^1x_{38}x_{57}^4x_{50}x_{56}^2x_{54}^1x_{51}^1x_{40}^1x_{58}$	
	18 <sup>h</sup> 50 <sup>m</sup>	S	$x_1^1x_{69}^2x_{70}x_{71}^1x_{73}x_{76}^3x_{67}x_{68}^1x_{75}^2x_{65}x_{74}^1x_{72}$	0.45±0.01
		E	$x_4^1x_6^1x_7^6x_5^1x_{10}^1x_8^2x_3^1x_{12}^4x_{11}x_{15}$	
		N	$x_{27}^1x_{30}$	
		W	$x_{42}^1x_{59}^3x_{38}x_{57}^3x_{50}x_{56}^3x_{54}^2x_{51}^1x_{58}$	
21 <sup>h</sup>	S	$x_1x_4^1x_2x_6x_7^3x_{71}^1x_{70}x_{76}^1x_{73}^1x_5^2x_{75}^1x_8^2x_3^1x_{74}^2x_{72}$	0.55±0.01	
	E	$x_{10}^1x_{12}x_{13}^1x_9x_{15}^1x_{11}x_{21}$		
	N	$x_{38}^3x_{27}^4x_{30}$		
	W	$x_{42}x_{69}^1x_{59}^5x_{67}^1x_{50}x_{56}^3x_{68}^4x_{65}^4x_{54}$		
24 X	17 <sup>h</sup>	S	$x_{59}x_{69}^1x_{57}^2x_{70}x_{71}^1x_{73}^2x_{56}^1x_{67}x_{68}^1x_{75}^1x_{58}x_{65}^2x_{72}x_{74}^7x_{66}$	0.38±0.02
		E	$x_1x_2x_4^1x_6^3x_{76}^2x_7^3x_{10}^3x_5^8x_8^3x_{13}$	
		N	-	
		W	$x_{42}^1x_{38}^5x_{40}x_{50}^1x_{30}x_{54}^1x_{51}^3x_{44}^4x_{48}$	
	19 <sup>h</sup>	S	$x_1^2x_2x_{69}^2x_{70}x_{71}x_{73}^1x_{76}^3x_{67}x_{68}^1x_{75}^1x_{74}^1x_{74}^1x_{65}x_{72}$	0.30±0.02
		E	$x_4^1x_6x_7^7x_5^1x_{10}^1x_8^1x_{12}^1x_{13}^1x_{15}^1x_{11}$	
		N	$x_{27}^1x_{30}$	
		W	$x_{42}^1x_{59}^1x_{38}^1x_{57}^3x_{50}^1x_{56}^2x_{54}^2x_{51}^1x_{58}$	
	20 <sup>h</sup>	S	$x_1x_4^1x_2^1x_{69}^2x_{70}x_{71}x_{73}^1x_{76}^2x_3^5x_{75}^2x_{74}^1x_{72}$	0.28±0.01
		E	$x_7^1x_6^8x_{10}x_{13}x_{15}^1x_8x_9x_{12}x_{21}^1x_{11}$	
		N	$x_{38}^4x_{27}^2x_{30}$	
		W	$x_{42}^1x_{59}^6x_{50}x_{56}x_{57}x_{67}^1x_{68}^3x_{54}x_{65}$	
25 X	20 <sup>h</sup>	S	$x_1x_4x_6x_7^1x_2^1x_{69}^2x_{70}x_{71}x_{73}^1x_{76}^2x_3^5x_{75}^2x_8^1x_{72}x_{74}$	0.31±0.01
		E	$x_9x_{10}x_{13}x_{15}^1x_{12}x_{21}^1x_{11}$	
		N	$x_{38}^4x_{27}^2x_{30}$	
		W	$x_{42}^2x_{59}^5x_{50}x_{56}x_{67}^1x_{68}^3x_{65}^1x_{54}$	

1	2	3	4	5
2 XI	21 <sup>h</sup>	S	$x_1 x_4 x_6 x_7 1 x_2 4 x_7 6 1 x_3 x_5 1 x_9 2 x_8 x_{10} x_{11} x_7 5^3 x_7 4$	0.32±0.02
		E	$x_{15} 1 x_{12} x_{21} 1 x_{13} 4 x_{22} 2 x_{23}$	
		N	$x_{42} 5 x_{38} x_{27} 3 x_{30}$	
		W	$x_{69} 1 x_{59} x_{71} 1 x_{70} 1 x_{73} 3 x_{50} x_{67} 1 x_{56} 4 x_{68} 1 x_{72}$	
	21 <sup>h</sup> 30 <sup>m</sup>	S	$x_7 1 x_1 x_4 x_6 1 x_2 4 x_3 x_7 6 1 x_5 x_9 2 x_{10} x_{12} x_{13} 1 x_8 x_{11} x_7 5^7 x_{14}$	0.28±0.01
		E	$x_{15} x_{21} 4 x_{22} 2 x_{23}$	
		N	$x_{42} 4 x_{38} 1 x_{27} 2 x_{30}$	
		W	$x_{69} 1 x_{59} x_{71} 1 x_{70} 1 x_{73} 3 x_{50} x_{67} 1 x_{56} 3 x_{74}$	
3 XI	21 <sup>h</sup>	S	$x_1 x_4 x_7 1 x_2 4 x_7 6 1 x_3 x_5 1 x_9 1 x_{10} x_{12} x_{13} 1 x_8 x_{11} x_7 5^3 x_7 4$	0.31±0.01
		E	$x_{15} x_{21} 5 x_{22} 2 x_{23}$	
		N	$x_{42} 4 x_{38} 2 x_{27} 2 x_{30}$	
		W	$x_{69} 1 x_{59} x_{71} 1 x_{70} 1 x_{73} 3 x_{50} x_{67} 1 x_{56} 5 x_{68} x_{72}$	
	22 <sup>h</sup>	S	$x_7 1 x_1 x_4 x_6 1 x_2 4 x_7 6 1 x_3 x_5 x_9 1 x_{10} 1 x_{10} x_{11} x_{12} x_{13} 1 x_8 5 x_{14}$	0.26±0.02
		E	$x_{21} 4 x_{22} 1 x_{23} 1 x_{16}$	
		N	$x_{42} 4 x_{38} 3 x_{30} 1 x_{50}$	
		W	$x_{69} 1 x_{71} 1 x_{59} 1 x_{70} 1 x_{73} 2 x_{75} 1 x_{67} 1 x_{56} 3 x_{74}$	
6 XI	18 <sup>h</sup>	S	$x_1 1 x_4 1 x_2 x_{69} 2 x_{70} x_{71} 1 x_{73} x_{76} 3 x_{67} 1 x_{68} x_{75} 3 x_{72} x_{74}$	0.48±0.02
		E	$x_6 1 x_7 6 x_5 2 x_{10} 1 x_8 1 x_{13} 1 x_{12} 1 x_{15} 1 x_{11} 3 x_{21}$	
		N	$x_{27} 2 x_{30}$	
		W	$x_{42} 4 2 1 x_{59} 3 x_{38} 2 x_{50} x_{56} x_{57} 4 x_{65} 1 x_{54} 4 x_{51} 2 x_{58}$	
	1 <sup>h</sup>	S	$x_6 x_7 2 x_{20} 4 x_9 x_{15} x_{21} 2 x_{10} x_{11} x_{12} x_{13} x_{22} 1 x_8 x_{16} x_{18} x_{19} x_{23}$ $x_{24} 3 x_{14} 1 x_{17}$	0.22±0.02
		E	$x_{38} 2 x_{27} 1 x_{30} 6 x_{26}$	
		N	$x_{42} 6 x_{59} 2 x_{50} 4 x_{56}$	
		W	$x_4 1 x_1 1 x_2 3 x_{71} 2 x_5 x_{75}$	
9 XI	20 <sup>h</sup>	S	$x_1 x_4 x_6 x_7 1 x_2 4 x_7 6 1 x_{73} 1 x_5 1 x_3 x_9 1 x_8 1 0 x_{75} 4 x_{74} 2 x_{72}$	0.42±0.02
		E	$x_{12} x_{13} x_{15} x_{21} 1 x_{11} 7 x_{22} 2 x_{23}$	
		N	$x_{42} 6 x_{38} 2 x_{27} 4 x_{30}$	
		W	$x_{69} 1 x_{59} x_{71} 1 x_{70} 4 x_{67} 1 x_{50} x_{56} 4 x_{68} 4 x_{65}$	
11 XI	17 <sup>h</sup>	S	$x_1 x_4 1 x_2 1 x_{69} 2 x_{70} x_{71} 1 x_{73} x_{76} 3 x_{67} 1 x_{68} x_{75} 2 x_{74} 1 x_{72}$	0.41±0.02
		E	$x_6 x_7 7 x_5 1 x_{10} 1 x_8 1 x_{12} x_{13} 1 x_{15} 1 x_{11} 1 x_9 x_{21}$	
		N	$x_{38} 5 x_{27} 2 x_{30}$	
		W	$x_{42} 1 x_{59} 5 x_{50} x_{56} 1 x_{57} 3 x_{65} 1 x_{54} 5 x_{51}$	

1	2	3	4	5
11 XI	17 <sup>h</sup> 30 <sup>m</sup>	S	$x_1 x_4 x_7^1 x_2 x_6^1 x_{69}^2 x_{70} x_{71}^1 x_{73} x_{76}^2 x_5^1 x_3^1 x_{75}^1 x_8^1 x_{74}^1 x_{72}^1$	
	2	E	$x_{10}^1 x_9 x_{12} x_{13} x_{15}^1 x_{11} x_{21}$	
		N	$x_{38}^4 x_{27}^2 x_{30}$	0.36±0.01
		W	$x_{42}^1 x_{59}^5 x_{50}^1 x_{56} x_{67}^1 x_{68}^3 x_{65}^1 x_{54}$	
12 XI	18 <sup>h</sup>	S	$x_1 x_4^2 x_2 x_{69}^2 x_{70} x_{71}^1 x_{73} x_{76}^4 x_{75}^2 x_{74}^1 x_{72}^1$	
	2	E	$x_6 x_7 x_5^2 x_8 x_{10}^1 x_{13}^1 x_{12}^1 x_{11} x_{15}^2 x_9 x_{21}$	0.43±0.02
		N	$x_{38}^5 x_{25}^2 x_{30}$	
		W	$x_{42}^1 x_{59}^5 x_{50} x_{56} x_{57} x_{67}^1 x_{68}^3 x_{65}^1 x_{54}^4 x_{51}$	
18 XI	17 <sup>h</sup>	S	$x_1^1 x_{69}^2 x_{70} x_{71}^1 x_{73}^1 x_{76}^2 x_{67}^1 x_{68} x_{75}^3 x_{65} x_{74}^1 x_{72}^1$	
	2	E	$x_4^1 x_2 x_6^2 x_7 x_5^1 x_{10}^1 x_8^2 x_{13}^2 x_{12}^4 x_{11}$	0.52±0.02
		N	$x_{27}^1 x_{30}$	
		W	$x_{42}^2 x_{59}^3 x_{38} x_{57}^3 x_{50} x_{56}^3 x_{54}^2 x_{51}^2 x_{58}$	
2 XII	16 <sup>h</sup>	S	$x_1^1 x_{69}^3 x_{70} x_{71} x_{73}^1 x_{76}^3 x_{67} x_{68}^1 x_{75}^2 x_{65} x_{72} x_{74}$	
	2	E	$x_4 x_6^1 x_7 x_5^2 x_{10}^1 x_8 x_{13}^2 x_{12}^2 x_{11} x_{15}$	0.33±0.02
		N	$x_{27}^1 x_{30}$	
		W	$x_{42}^1 x_{59}^1 x_{38}^1 x_{57}^3 x_{50}^1 x_{56}^2 x_{54}^1 x_{51}^1 x_{58}$	
	17 <sup>h</sup>	S	$x_1 x_4^1 x_2^1 x_{69}^2 x_{70} x_{71} x_{73}^1 x_{76}^3 x_{67} x_{68}^1 x_{75}^1 x_{74}^1 x_{72}^1$	
	1	E	$x_7^1 x_6^6 x_5^2 x_{10}^1 x_8 x_{12} x_{13} x_{15}^1 x_9 x_{11} x_{21}$	0.28±0.01
		N	$x_{38}^4 x_{27}^2 x_{30}$	
		W	$x_{42}^1 x_{59}^4 x_{57}^2 x_{50} x_{56} x_{54} x_{65}^3 x_{51}$	
3 XII	18 <sup>h</sup>	S	$x_1 x_4 x_6 x_7^1 x_2 x_{69}^2 x_{70} x_{71} x_{73}^1 x_{76}^1 x_3^1 x_5^2 x_{75}^1 x_9^1 x_{72} x_{74}$	
	2	E	$x_9 x_{10} x_{12} x_{13} x_{15}^1 x_{11} x_{21}$	
		N	$x_{38}^3 x_{27}^2 x_{30}$	0.29±0.01
		W	$x_{42}^2 x_{59}^5 x_{50} x_{56} x_{67}^1 x_{68}^3 x_{65}^1 x_{54}$	

w Wyższym Szkolnictwie Pedagogicznym”, która odbyła się w dniach 9–11 VI 1988 r. w Wenecji k.Żnina. Materiały przedstawione na powyższej konferencji (IV tematyka tej konferencji poświęcona była badaniom naukowym i pracom dyplomowym z zakresu ochrony środowiska) opublikowane będą również w Zeszytach Przyrodniczych.

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### **DIE ATMOSPHERISCHE EXTINKTION IN BYDGOSZCZ – DER ZWEITE TEIL**

#### **Zusammenfassung**

Jede klare Nacht 1986 in einigen Beobachtungsorten in Bydgoszcz setzt man die Helligkeitsmessung der Sterne fort (siehe die Tabelle 1 – Wegner 1988). Die Beobachtungsangaben als auch die Meteorologieangaben von der Periode April–Dezember sind in der Tabelle 1 gegeben worden. Die Helligkeiten der Sterne sind nach der Argelandermethode geschätzt. Die Beobachtungsangaben der Sternhelligkeiten in verschiedenen Himmelseiten sind in Tabelle 2 bezeichnet. In dieser Tabelle sind auch die durchschnittlichen Faktoren der Lichtabsorbierung in der Atmosphäre mit ihren Beobachtungsfehlern gegeben. Ihre Analyse werden in der Zukunft auch veröffentlicht worden.